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THE SURVEY

ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE
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Vol. 11

Washington, D. C., January 31, 1930

No. 1

GENERAL NOTES

Attend Science Meeting.--Mr. Redington attended the annual meeting of the American Association for the Advancement of Science at Des Moines, Iowa, December 27 to January 2, as a representative of the Bureau and of the Society of American Foresters, of which he is president. He addressed the forestry group on the work of the society during the past year, including plans for the future, and was re-elected its president for the coming biennium. The Biological Survey was also represented at the meeting by Dr. W. B. Bell and Dr. Walter P. Taylor, of the Division of Biological Investigations. Doctor Taylor presented a paper on "Methods of Determining Pressure of Rodents on the Range."

Addresses Rotary Club.--Mr. Redington addressed the Rotary Club of Frederick, Md., at its luncheon on January 15 on the subject of wild-life conservation.

Address Federation of Bird Clubs.--Mr. Henderson and F. C. Lincoln, in charge of bird-banding work, both addressed the meeting of the Federation of Bird Clubs of New England held at Boston, Mass., on January 16. Mr. Henderson, speaking on the subject of "Recent Developments in the Migratory Game-Bird Situation," stressed the fact that the only immediate relief that can be given the wild fowl of North America at the present time is to regulate the kill by hunters. Two other conservation methods are being followed, he said--establishing breeding refuges in the North, so as to increase the production of the various species, and providing resting and feeding sanctuaries along migration routes and in wintering grounds of the birds in the Southern States, as a further measure of protection during the hunting season--but these will require a period of several years; additional protection at the present time can be afforded only by reducing the annual kill. This, he developed, can be accomplished both through necessary amendments to the present regulations and by more adequately enforcing the existing laws.

Mr. Lincoln's talk was on the subject of "Banding Ducks" and was based on his experiences in North Dakota, Illinois, Utah, South Carolina, and Louisiana. He laid special emphasis on the development of banding methods. It has been considered, he said, that diving ducks could not be caught in automatic traps, but he has succeeded in capturing in such traps large numbers of canvasbacks, redheads, ringnecks, and lesser scaups--four species of chief importance to the sportsmen. He concluded his address by laying before the federation a problem for them to solve--how to band in quantity scoters and eider ducks, birds that are at times abundant on the New England coast.

Status of Agriculture Appropriation Bill.--Since the Biological Survey items in the Agriculture Appropriation Bill for 1931 were summarized in last month's SURVEY, the bill has passed the House of Representatives carrying an added item of \$15,000 for three additional game wardens to protect fur-bearing animals in Alaska. The bill is now before the Senate committee on agriculture and forestry.

Conservation Measures in Congress.--Senator Norbeck, of South Dakota, on January 6 introduced a bill (S.2908), coincident with the introduction of a bill (H.R.7994) in the House by Representative Andresen, of Minnesota, making it unlawful to kill or capture any bald eagle within the continental United States, Alaska, Porto Rico, or Hawaii, or to disturb or destroy any nest or eggs of such species, except when these birds are in the act of destroying lambs, fawns, or foxes on fox farms. Penalties of \$100 fine, or 60 days' imprisonment, or both, for violations are provided. The bills are pending before the Committees on Agriculture.

Senator Phipps, of Colorado, on January 13 introduced a bill (S. 3091) to establish a game refuge in the State of Colorado. The bill is now before the Public Lands and Surveys Committee.

A bill (H.R. 8534) was introduced on January 13 by Representative Hall, of North Dakota, to transfer jurisdiction of Sullys Hill National Park from the Department of the Interior to the Department of Agriculture, to be maintained as Sullys Hill National Game Preserve. This bill is pending before the Public Lands Committee.

Following the recommendation of President Hoover, there was introduced in Congress on January 14 a joint resolution to provide appropriation for defraying expenses of participation by the United States in the International Fur Trade Exhibition and Congress to be held in Leipzig, Germany, during 1930. The resolution is now before the House Committee on Foreign Affairs.

British Game Preservation.--Nature (London) for November 30 stated: "The cause of the preservation of the wild fauna of the British Empire can not but benefit from the publicity given to it in the debate in the House of Lords on November 21. No political partisanship is shown in this matter, for every speaker spoke with abhorrence of the slaughter which has been carried out under the name of 'sport.' Two widely different aspects of the question of killing wild animals cropped up in the course of the discussion. There is the new development of the running down and shooting of antelopes and the like by means of motor cars, an inexcusable travesty of the sporting idea, which is not only condemned on all hands, but, as Lord Passfield pointed out, is also definitely illegal. The difficulty in Tanganyika is just that which confronts the animal protectionist, whether he is dealing with legal shooting grounds or great animal reserves, namely, that the law is bound to be ineffective in face of the criminally disposed hunter if the area is not under thorough surveillance by a large staff of wardens. This is an expensive business unless, as some of the colonies have contrived, the cost of supervision is borne by the profits made from the necessary reduction of surplus wild stock. The Legislative Council and the Governor of Tanganyika are doing their best to prevent illegal and excessive shooting, and the debate should encourage them in their efforts...."

Death of William L. Pinney.--Word has just been received of the death on January 6 of William L. Pinney, of Phoenix, Ariz. Mr. Pinney served as State game and fish commissioner of Arizona for a period of ten years during territorial days and was responsible for many of the constructive legislative measures pertaining to game conservation in that State. Much of the fine progress that has been accomplished by Arizona in its game program can be traced to his early efforts.

Bureau's Motion-Picture Films Being Examined.--At intervals for some time past, Ernest P. Walker, assistant in reservations administration, has been working in the motion-picture laboratory of the Department examining the various miscellaneous sets of films belonging to the Bureau, with a view to titling and listing them according to project. This work, which also includes recommendations for completing each group of films, is the result of efforts of Lisle Morrison, in charge of the Bureau's exhibits and photographs, to systematize and assemble in usable form the miscellaneous films of the Survey. When the work is completed, a system of cataloguing will be adopted that will make the films more readily available for general use. Field men have rendered much assistance in the past by calling the Bureau's attention to films that could be obtained by purchase or otherwise for the Bureau's use.

Lantern-Slide Sets Assembled.--Mr. Morrison has recently completed the assembling of several sets of lantern slides on definite phases of the work of the Bureau, chiefly for the use of members of the staff, including field men, in their educational work. These lantern-slide series can be developed still further and their usefulness increased if Bureau workers will continue to be on the alert for good pictures and send in negatives illustrating the work of the various projects.

Official Publications.--The following official publications of the Bureau were issued during the month:

"Propagation of Aquatic Game Birds," by W. L. McAtee. Farmers' Bulletin 1612-F. 41 p., illus. Received January 10.

"Propagation of Upland Game Birds," by W. L. McAtee. Farmers' Bulletin 1613-F. 61 p., illus. Received January 6.

"The Habits and Economic Importance of Alligators," by Dr. Remington Kellogg. Technical Bulletin 147-T. 36 p., illus. Received January 23.

Radio Talks for February.--The following Biological Survey talk for the month of February is scheduled in the Department's radio program:

Control of Cottontail and Jack Rabbits (Uncle Sam's Naturalists series) ----- February 14.

Visitor.--Dr. Seymour Hadwen, director of veterinary research of the Ontario Research Foundation, Toronto, Canada, visited offices of the Bureau on January 23-24. Doctor Hadwen was formerly connected with the Biological Survey in the reindeer-investigational work, being joint author with Lawrence J. Palmer of the Department's first publication on the subject.

THE SURVEY with this issue enters upon the second decade of its history. In the past ten years there have been 120 issues, no month having been missed. The physical appearance of our house organ has been improved from time to time, and progress along this line will be continued as opportunity is afforded. Letters from our field men and statements made by them when visiting the Washington office or when visited by officials from headquarters indicate that THE SURVEY continues to serve a very useful purpose within the Bureau. It is the aim of the Bureau to increase this usefulness as much as possible during the coming years. THE SURVEY is issued under the editorship of Wm. H. Cheesman, assisted by Paul H. Oehser and Miss Ethel M. Johnson.

The Committee for the year 1930 has been designated by Mr. Redington as follows: W. C. Henderson, chairman; Edward A. Preble, representing the Division of Biological Investi-

gations; W. E. Crouch, Predatory-Animal and Rodent Control; E. R. Kalmbach, Food Habits Research; Frank G. Ashbrook, Fur Resources; W. R. Dillon, Ernest P. Walker, and Dr. T. S. Palmer, Game and Bird Conservation; Rudolph Dieffenbach, Land Acquisition; E. J. Thompson; Administration Offices; Lisle Morrison, Exhibits and Photographs; Wm. H. Cheesman, Editor; and Paul H. Oehser, Assistant Editor.

BIOLOGICAL INVESTIGATIONS

Two Biologists Appointed.--With the appointment and assignment to field stations of two trained biologists, effective January 2, the work of studying the relation of wild life to forests under the provisions of the McSweeney-McNary Forestry Research Act, may be considered as definitely inaugurated. Oliver L. Austin, Jr., of New York, and Thomas D. Burleigh, of Georgia, have been stationed at forest experiment stations at St. Paul, Minn., and Asheville, N. C., respectively, and have already begun the active work of establishing laboratories where the results of field studies will be elaborated and digested.

Visits Washington.--Dr. Walter P. Taylor, biologist of this division stationed at Tucson, Ariz., in his capacity as a vice-president of the National Federation of Federal Employees, was in Washington about a week early in January in connection with the meeting of the executive council of that organization. At the election of officers he was advanced from 9th to 8th vice-president. After the close of the meeting Doctor Taylor spent a couple of days at offices of the Bureau, mainly in conferences relative to the lines of work that he is conducting in the Southwest. The following excerpts are from a letter from Doctor Taylor, who for several years was a member of the Washington staff, written by him "en route" for his field station: "As a result of my recent trip to the Washington headquarters, I am more than ever impressed that we have in the Biological Survey as fine a bunch of folks as one could find in many days' searching, and that the quality of the spirit, enthusiasm, and morale of the group, while always good, is improving noticeably. Present trends assuredly justify the arduous labors of the earlier builders as well as of those now on the job. I am going back to work encouraged and full of confidence in the future of the Bureau, and proud to be connected with the organization and its personnel."

Elk Conference.--The second meeting of the Commission on the Conservation of the Elk in Jackson Hole, Wyo., was held in Washington December 4 and 5, 1929. The following members of the Biological Survey were present: Mr. Redington, E. A. Goldman, O. J. Murie, Ernest P. Walker, David H. Madsen, and Almer P. Nelson, protector of the Elk Refuge. Mr. Murie presented to the commission the main features of the elk problem and suggested needed remedial measures.

Returns to Jackson Hole.--Mr. Murie left Washington on January 5 to continue his study of elk in the Jackson Hole region. En route he made a special study of conditions affecting game and fur-bearing animals in Michigan and of the present status of the reindeer that were introduced into the Upper Peninsula country. While in Washington he also attended the meeting of the Yellowstone National Park Boundary Commission.

Director of Reindeer Station in Washington.--L. J. Palmer, in charge of the reindeer investigations in Alaska and director of the Reindeer Experiment Station near Fairbanks, is spending a few weeks at the Washington office, his first visit here since 1925. Since that time important developments have resulted from the studies in progress relative to feeding, breeding, and management of the large numbers of reindeer that are now being

produced in Alaska, and concerning the grazing practices best suited to the profitable use of the vast quantity of forage and other feed that Alaska is now producing. Valuable results are also being obtained in the experiments in crossbreeding reindeer and the native caribou. Arrangements have been made to cooperate with the Alaska College of Agriculture in experiments looking to the domestication of the mountain sheep of the region as a means of producing a meat animal adapted to the country and capable of feeding on both the native vegetation and the cultivated crops of the Territory. Mr. Palmer's stay in Washington will afford opportunity for important conferences, for planning details of the research program, and for the preparation of reports and material for publication.

FOOD HABITS RESEARCH

Contamination of Canal Affects Wild Fowl.--During the latter part of December, Mr. McAtee made an inspection of Back Bay, Virginia, and Upper Currituck Sound, North Carolina. The damage to duck-food plants in that area from salt and sewage contamination coming through the Albemarle and Chesapeake Canal has continued until vegetation is almost entirely destroyed over about half the entire area of these two bodies of water, a total of about 300 square miles. The diminution in the food supply has had the inevitable result of reducing the numbers of wild fowl visiting the region, and there are not now a hundred wild geese or swans where there were a thousand, nor one duck where there were ten thousand, during the time when the food supply for the birds in this region was at its best.

Inspects Wild-Fowl Food at Fredericksburg, Va.--C. C. Sperry made a brief trip to Fredericksburg, Va., during the month to investigate the alleged shortage in wild-fowl food there. The trouble, however, appeared to be more in the nature of a change in the movements of the birds than of a deficiency in the food supply.

In Mid-West on Game-Bird Study.--Herbert L. Stoddard is making another trip to mid-western States in the interest of cooperative studies of game birds there. He will visit each of the three cooperators now working on these problems at the Universities of Michigan, Wisconsin, and Minnesota.

FUR RESOURCES

Attends Sportsmen's Conference.--Mr. Ashbrook returned to Washington on January 14 from a trip to northeastern States. In Boston, on January 11, he attended the Sportsmen's Conference held by the Massachusetts Fish and Game Commission, and read a paper on "Fur Farming." In New York City he conferred with members of the committee appointed by the fur trade to arrange exhibits for the International Fur Exposition to be held in Leipzig, Germany, next summer. Representatives of the Leipzig Trade Fair, Inc., who are handling the publicity for the exposition, were also present at the conference.

More Animals at Fur Experiment Station.--Two minks were recently received at the U. S. Fur-Animal Experiment Station, Saratoga Springs, N. Y., from a fur farm at Greenland, N. H.; 6 pairs of silver foxes from a ranch at Brockway, Pa.; 1 red fox from a fox farm at Lake George, N. Y., and a pair of foxes from a fox farm at Sabattis, N. Y.--all for use in the experimental work at the station.

Makes Trip to Middle West.--Dr. K. B. Hanson attended a meeting of the Indiana Fox Breeders' Association, at Indianapolis, Ind., January 21 to 23. He is now in Minneapolis,

Minn., assisting Dr. R. G. Green of the Medical School of the University of Minnesota in the cooperative project on research in fur-animal diseases. He expects to remain there until the end of February.

Notes from the Rabbit Station.--A group of Federal and State officials met at the Rabbit Experiment Station, Fontana, Calif., on December 23, and outlined a program by which all Federal and State organizations will have a definite plan of cooperation in promoting the rabbit industry. More than 3,000 persons visited the rabbit station during 1929. Director John W. Meyer attended the Los Angeles County Poultry and Rabbit Show held from January 1 to 5, and displayed the exhibit that was shown last month at Fort Worth, Tex.

PREDATORY-ANIMAL AND RODENT CONTROL

Attends Livestock Association Meeting.--From January 16 to 18 Mr. Young was in Denver, Colo., where he attended the 33d annual convention of the American National Livestock Association. He addressed the conference on "The Bureau's Progress in Cooperative Pest Control." At Denver he also conferred with the leaders of the Control Methods Research Laboratory and with A. M. Day, leader of predatory-animal and rodent control in Wyoming, who came to Denver for the purpose. On his return trip to Washington Mr. Young stopped at Oklahoma City, Okla., to confer with A. E. Gray, leader in the Oklahoma-Arkansas district.

Good Cooperation in Idaho.--The quarterly report of L. J. Goldman, leader of predatory-animal control in the Idaho district, for the period ended December 31 shows that excellent cooperation is being given by stockmen and others of that State in predatory-animal control. During the quarter more than \$14,000 was provided in cooperative funds, and 72 hunters were employed on a cooperative basis. Among the results was the capture of 1,178 predatory animals, of which 1,138 were coyotes.

Rabid Muskrat Reported in Idaho.--According to the information received by Mr. Goldman, a child living near Fort Hall, Idaho, was recently bitten by a rabid muskrat that followed her to her home. The animal was killed and the body sent to the State bacteriologist for examination, which definitely established a case of rabies. The Bureau is making an effort to verify the report.

Reports Good Average Catch of Predatory Animals.--According to the report of Stanley G. Jewett, leader of predatory-animal control in the Oregon district, the catch of predatory animals during the quarter ended December 31 averaged 36 to each hunter.

Rabies in State of Washington.--Dr. Glenn R. Bach, leader of predatory-animal control in Washington State, reports an outbreak of rabies in his district. He states that recently a rabid coyote visited a farm near Odessa, Wash., and was killed in a fight with a dog. It was not known at the time whether the rabid animal had bitten any livestock, although it had passed through a pasture in which there were a number of horses, cattle, and sheep. The dog bitten developed rabies and was killed. About three weeks later one horse, a cow, and two sheep developed the disease and died. A local veterinarian was called and confirmed the diagnosis of rabies. Also, in an attempt to treat the cow with some home remedy before calling the veterinarian, the farmer and his son received scratches on their hands and both are now taking the Pasteur treatment. Several other cases of rabies in the vicinity of Odessa have been reported, and in order to employ additional hunters to relieve the situation, \$1,500 has been released from the Secretary's reserve.

Cooperation in South Dakota.--A meeting of sheepmen having grazing permits on the Harney and Blackhills National Forests was held recently in Rapid City, S. Dak., for the purpose of organizing the Blackhills Livestock Protective Association. The association was primarily formed to promote the protection of livestock from predatory animals, and by a unanimous vote it was decided to levy an assessment of 3 cents a head on all sheep grazed under Forest Service permits. The funds, amounting to about \$900, are to be collected with the help of Forest Service officials and used in the employment of hunters under the supervision of Louis Knowles, Biological Survey leader of predatory-animal control in South Dakota. Miss Sue C. Platt, clerk in Mr. Knowles's office, was chosen secretary of the new association.

Hunter's Work Appreciated.--Hunter Melvin Phillips, of the Oklahoma-Arkansas district, caught 20 wolves and 2 bobcats in Carter County, Okla., during November. In appreciation of his work, the Ardmore, Okla., chamber of commerce presented him with a new rifle.

Rats Cause No End of Trouble.--The following letter from a Woman's Relief Corps worker, recently received by the Bureau, illustrates one of the many ways in which rats are a menace--it should be stated that all possible steps have now been taken to relieve the situation:

"My sister is troubled with rats. She has tried everything, but she cannot get rid of them. They get in her beds on cold nights, and one night not long ago one of them scratched her leg most awful, three great scratches. She is very much afraid of them and they make her so nervous that she can not sleep at night. She is getting so thin and nervous that we are worried about her condition and in despair of getting rid of them, I am writing to you to know if your Department knows anything to do that will rid her of them. I know you often give people very good advice and think you may be able to help her get rid of them. Is pennyroyal any good? They seem to be too smart to go in traps and they are so sly and cunning about not showing themselves, but you can see the marks of their bodies where they have been in her bed. Kindly try to help us and oblige. I did not tell my sister I was going to write to you because we think it is best not to talk to her about rats. She lives in the country."

Appointments.--Effective December 13, C. M. Aldous was appointed junior biologist to assist J. C. Gatlin, leader in the New Mexico district, as a result of his successfully passing the examination for junior biologist. He is a brother of S. E. Aldous, district investigator in the Control Methods Research Project, and was formerly a member of the agricultural extension staff at Utah State Agricultural College.

Miss Esther Marmon was appointed clerk, effective January 2, to fill the position made vacant by the resignation of Mrs. Lucile Monnett in the Oklahoma-Arkansas district with headquarters at Oklahoma City. Miss Marmon was formerly employed as clerk on the State pay roll in the New Mexico district at Albuquerque.

Best wishes are extended to Mr. and Mrs. J. W. Rutledge, who were recently married. Mrs. Rutledge, formerly Miss Wanna Kintzley, is clerk in the district office at Albuquerque, N. Mex.

Radio Talks at Denver.--L. L. Laythe, leader of predatory-animal and rodent control in Colorado, gave a radio talk on January 22 over Station KOA, at Denver, on "Predatory Animal Work in Colorado." Other talks by members of the Denver office over the same station are scheduled as follows:

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| "Rodent Control Work in Colorado," by L. L. Laythe | February 26 |
| "Niche of the Biological Survey Research Laboratory in the Control of Animal Pests," by F. E. Garlough | March 19 |
| "Need for Technical Methods of Control of Animal Pests," by J. C. Ward | April 23 |

Wins Prize.--In a publicity contest held at the annual conference of the Massachusetts Extension Service, Ernest M. Mills, of the Eastern Rodent-Control District, stationed at Amherst, Mass., in charge of the New England Sub-District, won first prize with an article entitled, "The Autobiography of Mr. Woodchuck."

LAND ACQUISITION

Final Land Purchase Made at Bear River.--A tract of land containing 12,083 acres in Box Elder County, Utah, within the Bear River Migratory Bird Refuge, has just been acquired from the Central Pacific Railway Company and United States Trust Company. On the basis of the plans now made for the development of the refuge, this is the last acquisition by purchase that has to be made. One further acquisition, by exchange of lands, is now pending and will be consummated upon the completion of surveys to be made by the General Land Office.

Detailed to Washington.--Robert M. Rutherford, who has been in charge of one of the field appraisal parties working in many different parts of the country, has been detailed to the Washington office for a period of about one month.

Progress of Appraisal Parties.--Carey H. Bennett and party are now examining and appraising a proposed refuge site in northwestern Louisiana. Robert M. Rutherford's party now headed by Daniel H. Janzen, is working on the east coast of North Carolina.

Arthur A. Riemer, of the Washington office, is now engaged in directing an investigation of land ownership within several proposed refuge areas along the eastern coast of North Carolina. The title to lands in this region and the location of them are generally quite complicated by reason of the irregularity of the original surveys; also the lands involved were granted by the Crown of England many years before the Declaration of Independence. These titles are very ancient compared with those in the Western States.

GAME AND BIRD CONSERVATION

Game Protectors Do Not Enforce Trespass Injunctions.--In a statement issued to the press regarding an investigation of activities of United States Game Protector Kenneth F. Roahen and Federal deputies associated with him, as a result of which they were exonerated from charges that they had been using their Federal authority to prevent trespassing on private property, one may observe that it is not the purpose of the Biological Survey in enrolling United States deputy game wardens to clothe them with Federal authority that might be used to keep trespassers off property controlled by private hunting clubs. Persons appointed to the position are expected in every instance to cooperate whole-heartedly in the enforcement of the Federal game laws, but the authority given under the appointment conveys no right whatever to enforce local trespass laws or injunctions. The following are the essential features of the press statement:

United States Game Protector Kenneth F. Roahen and several deputy game wardens under his direction have been exonerated by Secretary Hyde from charges that they had been using their Federal authority to prevent trespassing on properties of private hunting clubs in

the Illinois River region. This action was taken following an official investigation made by R. W. Williams, deputy game conservation officer of the Department, who recently spent several days in the Illinois River section interviewing and obtaining evidence from various persons.

The necessity for the investigation grew out of charges against Roahen and his deputies made to the Secretary of Agriculture, followed by the submission of affidavits and other papers, purporting to prove that the Federal employees were protecting the premises of private hunting and fishing clubs along the Illinois River to the detriment of the general public. Mr. Williams's report on his investigation shows that practically all the properties involved in the charges are covered by Federal injunctions against trespassing. Each charge of abuse of office against the game protector or his deputies was fully investigated, with the result that the activities of the wardens as such were found to be in no way connected with enforcement of the injunctions or with the prevention of trespass. Mr. Williams reported that he had found nothing against Protector Roahen of a censurable nature and that he was of the opinion that he is performing his duties with diligence, fidelity, and impartiality.

Bag Limits Reduced.--The daily bag limits on ducks and geese allowed gunners will be reduced for the next season, 1930-31, by changes in the Federal regulations under the Migratory Bird Treaty Act, recommended by the Secretary and approved on December 31. The necessity for this reduction had become evident from exhaustive field investigations by the Bureau, which has disclosed that waterfowl have not been holding their own in the past year. The unusual drought that prevailed during the past season, and the reclamation of large former breeding grounds in the Northwest States and Canada, also have resulted in cumulative losses of great areas of marsh and water. This reduction has been vigorously insisted upon by the principal game associations of the country, and furthermore 29 States had passed legislation reducing the bag below the Federal standards. The regulations will go in force after the present season, and the bag will be reduced from the present limit on ducks of 25 to 15 a day and on geese from 8 to 4 a day; a possession limit of 30 ducks and 8 geese is also prescribed.

White Ibises and Egrets Observed.--Game Protector J. V. Kelsey reports that on December 18 he with four others visited a bird rookery about 17 miles northwest of Moore Haven, Fla. He states that after wading half a mile to get to the rookery, they saw not less than 2,000 white ibises and about 200 egrets.

Eider Ducks at Petit Manan Lighthouse, Maine.--Game Protector B. E. Smith reports that on December 7 he saw thousands of eider ducks, one flock alone containing about 9,000 individuals, in the vicinity of Petit Manan Lighthouse, near Millbridge, Me. It was extremely interesting, he says, to watch these birds diving for food in the heavy seas. The waves were high and were breaking, but he did not see a single duck get caught in the breakers.

Game Protector's Wife Injured.--Christmas plans in the home of Game Protector O. D. Steele, of Cambridge, Md., were disrupted by an automobile accident on December 24 in which Mrs. Steele was seriously injured. The car in which she and her son were riding was hit by another automobile and driven into the brick underpinning of a house. Mrs. Steele suffered a severe shock and several cuts and bruises, and the front of her car was completely wrecked. It is trusted that Mrs. Steele is now recovering rapidly from her injuries.

Aleutian Islands Reservation Reduced.--By an Executive order dated December 19, 1929, President Hoover withdrew from the Aleutian Islands Reservation, Alaska, all the island of Amaknak except an area of 195 acres in the southern portion reserved for the use of the Biological Survey and the Alaska Game Commission. The part withdrawn from the reservation was restored to the public domain subject to the jurisdiction of the Department of the Interior.

Protector of Big Lake Reservation Appointed.--Effective February 1, 1930, Steven B. Crossley, of Tennessee, has been appointed United States reservation protector and United States deputy game warden at Big Lake Bird Reservation, Arkansas, to fill the position made vacant by the death last March of Levin L. Bryan. Mr. Crossley has had 20 years' experience as a guide, hunter, trapper, and fisherman, and for the past 2 1/2 years was employed by the State of Tennessee as a game warden. He is familiar with the habits and needs of wild life and with laws relating to migratory birds.

Big Lake Frozen.--Nearly the entire surface of Big Lake on Big Lake Bird Refuge, Ark., was frozen on December 22, and it was possible to walk across the lake on the ice.

Lake Malheur Notes.--Protector George M. Benson of Lake Malheur Bird Reservation, Oreg., reports that there are thousands of swans remaining on the lake this winter. He says that he has no record showing that these birds have previously stayed so late in the season. An unusual shortage of coots this year is reported. Protector Benson states that 154 visitors registered at the refuge between April 25, 1929, and January 1, 1930, and that there were many others who did not register.

Elk at Elk Refuge.--Protector Almer P. Nelson, of the Elk Refuge, Wyo., reports that on December 27, in company with Forest Supervisor A. C. McCain, he drove over the Elk Refuge and adjacent areas to estimate the number of elk on the refuge. Approximately 3,000 of the animals were seen. Mr. Nelson states that because of the road from the southern part of the State remaining open to car travel a large number of persons hunted there during the last two weeks of the open season, and, according to the best information obtainable, nearly every one of them obtained an elk. Only four elk were seen on the refuge before the hunting season closed.

Disposal of Surplus Big-Game Animals.--The disposal of the surplus big-game animals from the four big-game preserves administered by the Biological Survey is about completed for this season. One hundred buffalo from the National Bison Range, Montana, were sold for meat, and 17 mule deer were crated and shipped alive to purchasers in various parts of the country. Fifty-six buffalo and 13 elk have been removed from Wind Cave Game Preserve, South Dakota; two of the buffalo were shipped to Kern County Park, Bakersfield, Calif., and six were transferred to the Custer State Park, South Dakota. Eight elk and three buffalo were removed from Sullys Hill Game Preserve, North Dakota, one of the elk being shipped to the city zoo at Harrisburg, Pa. Fourteen elk and two buffalo have been sold for meat at Niobrara Reservation in Nebraska. Four buffalo (one from Sullys Hill Preserve and three from Wind Cave) were shipped to the State game warden at Flagstaff, Ariz., for propagating purposes.

Sullys Hill Notes.--Protector Wesley D. Parker reports that the thermometer registered 39 degrees below zero at Sullys Hill Game Preserve, S. Dak., on January 9. At that time more pheasants than usual were feeding on grain with the antelope and near headquarters. Many grouse were feeding on buds in the timbered area within the preserve.

Muskrat Investigation on Upper Mississippi.--An investigation is being undertaken on the Upper Mississippi River Refuge to determine by means of a series of muskrats collected from representative areas the exact period in the year when, on the refuge, the pelts of the animals are in best condition, and what period, in view of breeding conditions, is most favorable for trapping. Such collecting will be pursued by the rangers throughout the present spring season and probably into the winter and spring of 1930-31 in order that complete data in the matter may be obtained. Portions of the specimens needed in the investigations will be forwarded to Washington for examination by the Divisions of Biological Investigations and Fur Resources. It is anticipated that information will be obtained that will be exceedingly valuable in the future conduct of muskrat trapping on the refuge.

Jail Sentences Imposed for Illegal Trapping.--For breaking open muskrat houses and illegal trapping on the Upper Mississippi River Refuge, two residents of Houston County, Minn., were each sentenced on January 6 to 45 days of hard labor in the rock quarry maintained by the county. Ranger Hall deserves much credit for his efforts in bringing these offenders to justice. He remained concealed in the marsh without shelter in sub-zero temperature all night until the defendants appeared to visit their traps at six o'clock in the morning. The men at first resisted arrest, but firm action on the part of the ranger finally caused them to yield to reason and to accompany him for appearance in court.

Fined for Illegal Possession of Muskrats.--Two residents of Winona County, Minn., were apprehended on December 10 by Junior Ranger Hall for possession of muskrat pelts during the close season, presumably taken from the Upper Mississippi River Refuge areas, and upon pleas of guilty in State court were sentenced to pay fines of \$10 and \$20, respectively, plus costs of trial. One defendant was obliged to pay an additional fine for threatening the ranger with violence.

Summary of Violations Reported on Upper Mississippi during 1929.--Twelve instances of violations of the Upper Mississippi River Refuge Act and Regulations were reported to the Washington office during the calendar year 1929. Four other cases involving violations of the same act were terminated in Federal court with fines aggregating \$100. In addition, 61 cases involving game and fish law offenses on the refuge area in 1929 were prosecuted in State court. Of these, 57 have been terminated with fines aggregating \$1,476 and costs totaling \$82.81, and one with a jail sentence of 12 days, 6 with jail sentences of 30 days each, and one with a jail sentence of 90 days. Four cases are pending trial.

17 Chicago Bird-Law Violators Fined in One Day.--Seventeen persons charged with infractions of the migratory bird treaty act were arraigned in Federal court at Chicago, Ill., on December 23, 1929. Fines ranging in amounts from \$10 to \$50 and totaling \$520 were imposed.

Treaty-Act Cases Terminated--Reports Received During December

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> | <u>Fine</u> |
|------------------------------------|--------------|--------------|---|-----------------------------|
| Barmeier | 1 | Missouri | Killing doves in close season | \$10 payable on execution |
| Barmeier, Heller* | 5 | " | Possessing ducks in storage in close season | \$10 each |
| Barmeier, Meadows** | 1 | " | Killing and possessing a wood duck | \$10 |
| Birsch | 2 | N. Carolina | Possessing ducks in storage in close season | \$1 and costs each |
| " | 1 | " " | Possessing brant and ducks in storage in close season | \$1 and costs |
| Gieseler* | 1 | Illinois | Killing a duck in close season | \$10 |
| " | 1 | " | Possessing robins, catbirds, and a meadowlark | \$50 and costs |
| " | 1 | " | Hunting and possessing a bittern, a flicker, and robins | \$50 and costs |
| Harris* | 2 | Arkansas | Killing ducks prior to half an hour before sunrise | \$5 each |
| Jans* | 1 | Illinois | Hunting coots in close season | \$10 |
| " | 1 | " | Hunting flickers | \$25 |
| " | 1 | " | Killing and possessing a flicker | \$25 |
| " | 2 | " | Killing flickers and thrushes | \$50 each |
| " | 1 | " | Killing flickers | \$35 |
| " | 1 | " | Killing flickers | \$25 |
| " | 1 | " | Possessing insectivorous birds | \$25 |
| Linebaugh, Gentry**, Skidmore** | 1 | Kentucky | Killing and possessing a coot in close season | \$500 and costs (suspended) |
| McCulloch* | 2 | California | Hunting ducks prior to half an hour before sunrise | \$10 each |
| Oberhaus* | 3 | Alabama | Killing ducks from a motor boat | \$25 each |
| Perry | 1 | Mississippi | Hunting ducks after sunset | \$10 and costs |
| Ransom, McGee*, Deeter** | 1 | Washington | Killing ducks in close season | \$20 |
| Roahen | 1 | Illinois | Shooting at coots from a motor boat | \$15 and costs |
| Scholler*, Jans* | 2 | " | Killing and possessing coots in close season | \$25 each |
| " " | 1 | " | Killing and possessing a bittern | \$25 |
| " " | 1 | " | Killing a cedar waxwing | \$25 |
| Scholler*, Petersen* | 1 | " | Killing coots from motor boat | \$50 |
| " " | 1 | " | Killing coots from a motor boat | \$25 |
| Shaver | 1 | North Dakota | Possessing ducks in storage in close season | \$5 |
| Shaver, Kauppi** | 1 | Minnesota | Possessing ducks in storage in close season | \$50 |
| Smith | 2 | Maine | Killing yellowlegs | \$5 each |

* U. S. Deputy Game Warden.

** Deputy State Game Warden.

Treaty-Act Cases Reported During December

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> |
|---------------------------------|--------------|--------------|--|
| Clarkson | 1 | Texas | Killing mourning doves in close season |
| " | 2 | " | Killing and possessing sandpipers; hunting from an automobile |
| Holmes, Schuenke* | 1 | Iowa | Possessing wood ducks |
| Merovka, Riddick, Dickerson* | 3 | Tennessee | Hunting ducks from a motor boat |
| Oberhaus* | 3 | Alabama | Killing ducks from a motor boat |
| Roahen | 2 | Illinois | Killing coots from a motor boat |
| " | 1 | " | Killing ducks from a motor boat |

*U. S. Deputy Game Warden.

**Deputy State Game Warden.

THE SURVEY

ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U.S. DEPARTMENT OF AGRICULTURE
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Vol. 11

Washington, D. C., February 28, 1930

No. 2

GENERAL NOTES

Chief Addresses Conservation Institute.--Mr. Redington, on February 13, addressed the students of the Game Conservation Institute, at Clinton, N. J., speaking principally on the work of the Biological Survey. On the evening of the same day, he was a guest at the dinner of the Camp-Fire Club, in New York City. On February 19 he was one of the speakers also at the banquet of the District of Columbia Chapter of the Izaak Walton League of America, in Washington.

The Agricultural Appropriation Bill (H. R. 7491), which passed the House of Representatives on December 20, 1929, was reported to the Senate on February 4, 1930. Increases in items for the Biological Survey totaling \$76,157 were added by the Senate committee on agriculture and forestry, as follows: \$7,000 for studies of the production of fur-bearing animals; \$4,157 for laboratory work in identification of birds and mammals; \$40,000 for investigations of destruction of young wild ducks by sea gulls and for additional United States game protectors; and \$25,000 for establishment of the musk-ox industry in Alaska. The total appropriation for the Biological Survey as reported to the Senate is \$1,837,477.

List of Workers Revised.--The mimeographed list of the personnel of the Biological Survey (Bi-945) has been revised to February 1, 1930, and one copy has been sent to each field office. Additional copies may be had as needed on request.

Official Publications.--The following official publications of the Bureau were issued during the month:

"Raising Badgers in Captivity," Bi-1059 (mimeographed), 2 p. Received February 3.

"Raising Muskrats," Bi-1060 (mimeographed), 2 p. Received February 3.

"The Normal Breeding Season and Gestation Period of Martens," by Frank G. Ashbrook and Dr. K. B. Hanson. Circular 107-C, 7 p. Received February 27.

Radio Talks for March.--The following Biological Survey talks for the month of March are scheduled in the Department's radio program:

"How to Protect Yourself from Snakes" (Uncle Sam's Naturalists series) . . . March 14.

"The Economic Value of Birds," by E. R. Kalmbach, in the Farm and Home Program of the Department and the National Broadcasting Company, 1:30 p. m., E. S. T.. March 27.

BIOLOGICAL INVESTIGATIONS

Interesting Bird-Banding Returns.--Among the interesting return records of banded birds recently received are the following: A redhead duck banded in September, 1929, at

Dawson, N. Dak., was killed in the Delaware River, N. J., on November 4, 1929; a black duck banded at Southampton, N. Y., on March 6, 1929, was killed near Wabasha, Minn., on October 10, 1929; and a pintail banded on July 6, 1929, at Goose Lake, Stillwater County, Mont., was killed on October 23, 1929, at Playa Norte, Puerto Mexico, Vera Cruz. A cat-bird banded on May 14, 1927, at Schoharie, N. J., has been reported recaptured on October 25, 1929, at Tela, Honduras. A cardinal that was banded at Thomasville, Ga., on March 28, 1921, has furnished an interesting series of records, as it has been retaken almost every year since; the last capture was on February 2, 1930, proving that this bird is now at least ten years old. The only years since it was banded that it was not recorded were 1925 and 1929.

Begin Study of Relation of Wild Life to Forests.--Oliver L. Austin, Jr., has begun his study of the relation of wild life to forests at the Lake States Forest Experiment Station at St. Paul, Minn. Thomas D. Burleigh, after working a short time at the Appalachian Forest Experiment Station at Asheville, N. C., visited Washington during the month to take part in conferences relative to the conduct of the work. Both these men are enthusiastic in entering upon this interesting and useful work that promises to develop so much information in forest biology.

FOOD HABITS RESEARCH

Studies Game-Bird Conditions.--Herbert L. Stoddard spent considerable time during the month, both in the laboratory and in the field, with Fellows of the Universities of Michigan, Wisconsin, and Minnesota, working on cooperative game-bird projects in their respective States. Good opportunity was afforded to study the birds under severe winter weather conditions. Mr. Stoddard also visited the Maryland State Game Farm at Gwynnbrook to determine the cause of unusual losses among the quail.

Outbreak of Wild-Duck Sickness in Louisiana.--E. R. Kalmbach was in Louisiana most of the month investigating an outbreak of a malady among wild ducks that is reported to have killed from 25,000 to 30,000 ducks in a single locality.

Addresses Biological Society.--On the evening of February 22, Fred A. Warren, junior botanist, addressed the Biological Society of Washington on the subject "Along the Trails of Mount Rainier," his talk being illustrated with lantern slides.

Appointment.--A. Sidney Hyde, a graduate of the University of Illinois, has been appointed junior biologist, effective February 3, to assist in the examination of the contents of bird stomachs.

FUR RESOURCES

Motion Pictures Made of Fur-Trade and Fur-Farming Activities.--During the recent fur-auction sales in New York City, Raymond Evans, in charge of the Department's Office of Motion Pictures, filmed activities of the sale, the manufacturing establishment, and the dressing and dyeing plant. Later he made a trip to marsh areas of Louisiana, where he photographed muskrat habitat and scenes showing activities of trappers, after which he went to Fontana, Calif., to take motion pictures at the U. S. Rabbit Experiment Station and

of work of the rabbit industry in general. It is planned to use these pictures at the International Fur Trade Exhibition and Congress to be held in Leipzig, Germany, from May 31 to September 30, 1930.

Attend's Veterinary Conference.--From January 27 to 31, Dr. J. E. Shillinger attended the Tri-State Veterinary Conference held at the Virginia Polytechnic Institute, at Blacksburg, Va., and discussed the various phases of fur farming as it relates to the veterinarian. He reports a growing interest in this field in the mountainous parts of Virginia, West Virginia, and North Carolina. On one day of the conference the group of veterinarians in attendance visited a silver-fox farm at Christiansburg, Va.

Visit Fur Farms.--Doctor Shillinger and E. A. Goldman, of the Division of Biological Investigations, spent February 5 studying conditions at a fur farm near Marlboro, Md., on the Patuxent River, where an attempt is being made to raise muskrats, raccoons, and rabbits in pens. A 250-acre tract of marshland is included in the farm, on which it is planned to trap live muskrats.

In company with an official of the University of Maryland, Doctor Shillinger visited muskrat-raising sections near Dorchester, Md., from February 7 to 9, and noted that the extensive marsh areas in that region are not producing the usual crop of pelts this year, as a result, it is believed, of last summer's drought. The fine type of muskrats native to that part of the county makes them especially desirable for stocking purposes in other places. The trapping of these animals alive is extensively practiced there by several companies. One farmer, who had more than 500 muskrats in small pens ready for shipment, has made sales not only in the United States but in parts of Europe and South America also.

Fitches Arrive at Fur Farm.--Two German fitches, donated by a cooperator in California, were recently received at the Fur-Animal Experiment Station, at Saratoga Springs, N. Y., and will be kept there for experimental studies.

Disease Outbreak in California Rabbitries.--For the past year domestic rabbits have been reported dying on ranches in California from disease, the nature of which has not yet been determined. The Rabbit Experiment Station has been cooperating with the University of Southern California and other State organizations to find the cause of the trouble and remedy it if possible. A detailed survey by State officials indicates that the losses on rabbitries have averaged about 50 per cent of the stock.

Appointment.--Miss Myrtle T. Jamison has been appointed agent, effective February 10, to assist in the fur-animal disease work at the University of Minnesota, at Minneapolis.

Named Fontana Girl.--Little Mary Jane Meyer, daughter of the director of the U. S. Rabbit Experiment Station, at Fontana, Calif., on February 15 was elected the Little Fontana Girl for 1930. She led the Fontana Day parade to the National Orange Show and reigned throughout the afternoon, holding an important place on the program.

PREDATORY-ANIMAL AND RODENT CONTROL

Bills Introduced to Authorize Ten-Year Control Program.--On February 5 Congressman Leavitt, of Montana, introduced a bill (H. R. 9599) in the House of Representatives that would authorize the ten-year program for the control of predatory animals and injurious rodents. A companion bill (S. 3483) was introduced into the Senate on February 8

by Senator Norbeck, of South Dakota. Both bills have been referred to the respective committees on agriculture. At its last annual meeting the American National Live Stock Association passed a resolution urging the adoption of the ten-year program, and similar resolutions have been passed by practically all the State woolgrowers' associations and other organizations interested in predatory-animal and rodent control.

Rabbit Control Valuable to Sheep Owners in Idaho.--According to T. B. Murray, leader of rodent control in the Idaho district, sheep owners attending the Idaho woolgrowers annual convention, recently held at Idaho Falls, reported that more than 200,000 sheep are feeding on desert browse, and that better feeding conditions obtain now than at any other time during the past 12 years on the desert and semi-desert ranges in Idaho, totaling 12,000,000 acres. The successful control of rabbits on this area is largely responsible for the increased forage growth. Usually during the winter it is necessary to supplement the range forage with other feeds, but this year, because of the quantity of native forage available, the sheep owners estimate that the cost of feeding will be reduced about 50 cents a head on 200,000 sheep in consequence of the less amount of outside feed necessary. Wood ticks, which cause losses in livestock and transmit spotted fever, also are fewer in number as a result of campaigns against jack rabbits, and operations for their control have thus assisted in the elimination of a public-health menace.

Porcupine Control in Idaho.--Mr. Murray likewise reports that operations for the control of porcupines were started early in January on the Salmon and Cache National Forests in cooperation with the Forest Service. This campaign, in which the poisoning methods recommended by the Biological Survey were used, is the first effort at porcupine control on a cooperative basis in Idaho.

Rodent Damage in Texas.--L. C. Whitehead, leader of rodent control in the Texas district, reports that early last fall a single break in an irrigation canal caused by pocket gophers resulted in a great loss of water at a time when it was scarce and urgently needed by the farmers. The cost of repairing the break amounted to approximately half of the sum required for the season's pocket-gopher operations now under way in the vicinity of the break. Actual field operations were started on December 5, and an area of about 2,800 acres was covered; 420 quarts of poisoned baits were distributed at a cost of \$303.50.

Three farmers of Ward County, Tex., estimated that the damage done by prairie dogs during the past year to their cotton crop was in excess of 10 bales.

Coyotes in Alabama.--Until comparatively recently few persons knew that there were coyotes in Alabama. The following quotation from the August, 1929, issue of the Alabama Game and Fish News shows that these animals seem to be extending their range in that State:

"Their presence was first noted when the dam at Cherokee Bluffs backed up the water and ran some coyotes out, according to reports. Little definite information was gained in reference to them. The first serious complaint came from Barbour County in December, 1928, when Mr. C. P. Storrs, county agent, reported that coyotes were becoming quite a menace to outlying farms and were destroying turkeys, chickens, pigs, young calves, rabbits, and quail. They were said to have been brought into the State by some fox hunters

who had purchased them about three years previously under the impression that they were gray fox pups. Early during the spring it was reported that a lone gray wolf was causing much destruction in Marengo County, the damage having extended over a period of about a year. Mr. B. L. Collins, of Gallion, finally killed the animal in March when it became friendly with his bird dogs and came into the yard with them. It proved to be a coyote and had killed about 60 sheep, a large number of turkeys and chickens, and some pigs.

"Coyotes have recently been giving trouble in Autauga County. On the night of Thursday, June 28, they killed 27 chickens near Prattville. Three or four are said to have been seen by Mr. Randolph Gillespie and Mr. A. C. Trice, the former having come within ten feet of one in the daylight. They are supposed to have a den in the vicinity of or in the high parts of the Bear Creek Swamp between Prattville and Booth."

Trials of Predatory-Animal Hunters Not Few.--That the life of a predatory-animal hunter is far from being easy is readily evident from the reports of the daily activities of such men. The following excerpt from the December report of Hunter Leo Smith, of the Wyoming district, affords some idea of the trials and tribulations of a hunter:

"December 6, Rode poison line and found sheep camp moved on the station. Broke axle of car and drove to Rock Springs to get it fixed. December 7, Waited for car until late. Broke through ice on Green River and had to leave car until morning. December 8, Pulled car out of river. December 15, Herder reported seeing someone take two coyotes from station but reported one below ranch. Found it stolen too. Found where someone has burned up station. December 17, Someone had stolen all coyotes of value and left pelts destroyed by eagles. Broke through ice again and worked all day getting car out of river. December 27, Worked all day getting car started. Left for lines. Stopped to shoot coyote and couldn't get car started. Walked seven miles to ranch. Fellow pulled car with team seven miles to ranch. Got towed to Green River, arrived at 4 a.m." In spite of all his troubles, Mr. Smith caught 19 coyotes during the month.

Hunter Francis Williams, of the Idaho district, in January was caught in a blizzard and had to spend the night in the desert. His hands and feet were frozen and he narrowly escaped death.

Hunter C. E. Beebe, of the Montana district, succeeded in taking six mountain lions, one adult female and five young, in January. He had an interesting time while securing these animals, as he had to go back about 45 feet into a cave to snare the young. The entrance to the cave was so small that it was with much difficulty that he could approach close enough to work his snare. After getting the young lions out, he had to carry them about two miles to a road and then had to make a sled out of natural materials at hand to haul the lions into town. His load consisted of the old female lion skin, the five young, which weighed 6 to 8 pounds each, and his pack outfit. There is plenty of hard work and hardships for the lion hunter, and Hunter Beebe often spends two weeks at a time in the mountains on his snowshoes and with his pack outfit. Such weather as is common in Montana at this time of year is anything but favorable for outdoor camping.

Black Wolf Reported in Idaho.--L. J. Goldman, leader of predatory-animal control in the Idaho district, has received a report that a black wolf was killed on the desert near Aberdeen, Idaho. This is the first record the Bureau has had of wolves in this section for several years. About the year 1917 a pack ranged in the vicinity of the Snake

River desert west of Aberdeen, but it suddenly disappeared, and a couple of years later several wolf skulls were found in a deep crater in the lava beds. It is possible that the wolves were snowed under during a blizzard and were unable to get out of the crater.

Report of Rabid Muskrat Verified.--The report in the last issue of THE SURVEY of a rabid muskrat biting a girl living near Fort Hall, Idaho, has now been verified by a letter from the physician at Pocatello who attended the case. On December 10, 1929, the girl was bitten, and ran toward the house screaming, the muskrat following her. Her younger brother, hearing her screams, opened the door, and as soon as the girl passed through, shut it, in so doing catching the muskrat by the neck between the door and the door jamb. The animal was killed and its head sent to the State bacteriological laboratory at Boise, Idaho, for microscopic examination, where the assistant State bacteriologist pronounced the case positive for rabies. The girl took the Pasteur treatment on December 12. No other cases have been reported, and so far as information can be obtained there appears to be no other evidence of rabies in any part of Idaho.

Rabies in Utah.--George E. Holman, leader of predatory-animal control in the Utah district, reports that his office recently received requests for assistance from Grantsville, Utah, where a coyote had killed several sheep and had bitten a number of others before it was killed. The brain of the coyote was procured and sent to the State bacteriological laboratory for examination, and the case proved positive for rabies. Mr. Holman advises that steps are being taken to control the coyotes in the locality in which this case of rabies was discovered and that the State of Utah is issuing a quarantine ordering that all dogs in the county be kept in inclosures for at least 60 days.

Honored by N. F. F. E. Branch.--Mr. Holman was elected president of the Salt Lake branch of the National Federation of Federal Employees on its organization in Salt Lake City, Utah, on January 29.

Counties Cooperating in Wyoming.--Cooperative funds for the control of predatory animals in Wyoming are now on a firmer basis than heretofore as a result of the action of the commissioners in six counties in the eastern part of the State, where appropriations that will provide for six full-time hunters were made. These county appropriations have been made to replace funds that in the past were raised by sheepmen by voluntary assessment.

Skinner Transferred to Minnesota.--C. C. Skinner, formerly assistant in the Wyoming district, has been transferred to the newly created Wisconsin-Minnesota district to assist O. L. Coleman in predatory-animal work. Mr. Skinner's services in the Bureau began in 1926 as a hunter, and as the result of a civil-service examination he qualified in 1928 as a junior leader. His new headquarters will be at Duluth, Minn.

Musgrave Transferred to Forest Service.--Mark E. Musgrave, leader of predatory-animal control in the Arizona district, has been transferred to the Forest Service, effective March 1, to carry on work in connection with the administration of wild life on the national forests. His new duties will be to direct, supervise, and correlate the

collection of data germane to the working out of balanced game-management plans on the national forests of the Southwestern Forest District (No. 3). In point of service Mr. Musgrave is one of the oldest leaders of predatory-animal control in the Bureau, and has been loyal in the performance of his duties, efficient, and valuable. From 1907 to 1910 he was connected with the Forest Service as forest ranger, during which time he gained initial experience in handling forest problems; and from 1911 to 1916 he was city forester of Portland, Oreg., and engaged in horticultural work, specializing in beetle eradication. Mr. Musgrave entered the employ of the Biological Survey on June 1, 1916, as an assistant in predatory-animal control in the old New Mexico-Arizona district, and in July, 1918, was promoted to leader of predatory-animal control in Arizona, his present position. In carrying out his new work he will cooperate with representatives of the Biological Survey, of the States involved, and of other agencies, in addition to directing and instructing forest officers in the execution and management of the plans developed. Through his long connection with the Bureau in its predatory-animal control operations, Mr. Musgrave has gained a general knowledge of game conditions and a familiarity with the country covered by his new field of service. The Bureau regrets to lose his services, and hopes that he will be as successful in his new work as he has been in that which he is now relinquishing.

Gilchrist to Have Additional Duties.--On Mr. Musgrave's transfer to the Forest Service, Donald A. Gilchrist, now leader of rodent control in Arizona, will take charge also of the predatory-animal work. Through his close contact with Mr. Musgrave's office and his wide acquaintance in Arizona, Mr. Gilchrist is well qualified to direct both the predatory-animal and the rodent-control work in the State.

Death of Miss Higginbottom.--It is with regret that the death is recorded of Miss Hannah Higginbottom, clerk in the California district, which occurred on February 4. Miss Higginbottom was one of the Bureau's most efficient clerks and handled a large amount of detail in the joint office of Leaders Poole and Keyes. She will be greatly missed by the Bureau and by her many friends.

Personnel Changes.--Mrs. Norma M. Brown, formerly junior clerk-stenographer in the office of the California district at Sacramento, has been promoted to take over the duties formerly performed by Miss Higginbottom. Miss Helen Cabral was appointed, effective February 5, to fill the position made vacant by the promotion of Mrs. Brown.

LAND ACQUISITION

Examines Proposed Refuge Site in Missouri.--Mr. Dieffenbach made a short field trip to Missouri in mid-February to make a preliminary examination of an apparently desirable refuge unit in that State.

Progress of Appraisal Parties.--Carey H. Bennett and party have completed the examination of a proposed refuge site in northwestern Louisiana and are now engaged in the examination of an area in Alabama. Daniel H. Janzen's party has completed its work on proposed refuge sites in North Carolina and is now working on a unit on the "eastern shore" of Virginia.

To Complete Survey Work at Savannah Refuge.---Arthur A. Riemer, of the Washington office, is at present working on the survey of the Savannah River Refuge in order that the exact boundaries may be clearly marked. It is expected that this work will be completed shortly.

Transferred to Washington Office.---Miss Melba Batdorf has been transferred from the office of the Upper Mississippi River Refuge at Winona, Minn., to the Washington office to assist in clerical and stenographic work.

GAME AND BIRD CONSERVATION

Ducks Starving in Washington State.---Game Protector W. H. Ransom, of Spokane, Wash., reported on January 24 that because of the cold and snow the waterfowl wintering near the Columbia River Bird Refuge and near Sprague, Wash., were starving, and that between January 13 and 30 a Benton County game warden had distributed about two tons of wheat to the starving birds at approximately a dozen feeding places, where between 3,000 and 3,500 ducks were fed. At these feeding places 15 dead ducks (7 baldpates, 6 mallards, and 2 green-winged teals), 1 dead coot, a sick baldpate, and a coot that made no attempt to fly were found. Protector Ransom stated that prairie falcons and other hawks undoubtedly prey upon many of the weakened ducks. An unusual habit of these starving ducks observed both last winter and this was that they fed on asparagus berries in the fields and along fence rows. Much commercial asparagus is grown in the region, and the old stalks, hanging full of red berries, are frequently left in the fields until early in spring. The ducks had eaten every trace of vegetation normally growing in the water of the springs in areas along the Columbia River in which they were wintering. Reports from Idaho indicate that although the State game department has fed a few ducks, the number requiring food this year can in no way be compared with the numbers fed last year.

Appointment.---Mrs. Ruth W. Gibbs was appointed to the position of junior typist in the Washington office on January 28.

Elk Refuge Notes.---Feeding hay to the elk at the Elk Refuge, Wyo., was begun on February 6, and on the same day the State game department established a feeding ground on the Izaak Walton League Addition. Four men are employed by the Survey for the purpose and three by the State. On the day the feeding started, the weather turned warm and much of the snow melted, but a freeze followed and considerable ice formed on the meadows. Not many elk came to the feeding grounds during the warm weather, but on February 12 approximately 5,500 were there. The State game and fish commissioner estimated that there were 7,000 elk in the region from Jackson north to the Gros Ventre River, near Kelly, including the feeding grounds, and stated that many of the animals were migrating toward the refuge from the Gros Ventre River region.

What might have been a disastrous fire occurred at the Elk Refuge on the night of January 9 after the protector and his family had retired. Smoke was discovered and upon investigation a fire was found burning between the plaster and the logs back of the kitchen chimney, which had become overheated. The fire was extinguished, however, before much damage was done.

Severe Weather Conditions on Preserves Reported.---Unusually severe weather conditions have prevailed this winter at some of the reservations. At Sullys Hill Game Preserve, N. Dak., the crusted snow has been 16 inches or more deep, and the thermometer has registered as low as 34 degrees below zero. The buffalo and elk at this preserve have

been fed regularly since October, and enough hay remains to feed the animals until the snow melts. Severe weather conditions have also prevailed at the Elk Refuge, where temperatures ranging from 32 to 40 degrees below zero have been recorded.

The coldest weather since 1924 has been experienced this winter at Lake Malheur Bird Reservation, Oreg. Several bluebirds have been observed at headquarters, and Protector George M. Benson is of the opinion that they have wintered in the vicinity, as they have been seen several times. Some small birds that were frozen to death have been observed on the refuge. Protector Benson has established a feeding station at headquarters, and small birds now visit it every day to feast on tallow and other feed placed there for them.

Importations.--Heavy losses in canary shipments have been reported recently. Of a shipment of 1,200 canaries brought in from Hamburg, Germany, about February 6, only 787 reached their destination alive, and on a previous trip of the same ship an entire shipment of 4,000 died.

Psittacosis.--On account of the recent outbreak of parrot fever, or psittacosis, which appeared early in January and caused several deaths throughout the country, President Hoover, on January 24, issued an order prohibiting the importation of parrots at any port in the United States or any of its possessions or dependencies. This order, according to regulations of the Secretary of the Treasury, is not to be construed to include cockatoos, macaws, love birds, or parrakeets. Up to date about 70 cases of parrot fever, resulting in 16 or 17 deaths, have been reported from various States and from Honolulu. In only a few of these has it been possible to ascertain the species of parrot suspected of transmitting the disease or the port from which it came. At least three species of Amazons have, however, been connected with the outbreaks--Panama parrots from Colombia, double yellow-headed parrots from Mexico, and blue-fronted parrots from southern Brazil. Other species were undoubtedly involved but were not identified before the sick birds were destroyed.

Quail Imports from Mexico Start.--The season for the importation of quail from Mexico opened on February 15. This season's concessions have been granted by the Mexican authorities to certain importers on the border for the export of 120,000 birds.

Largest Fine Imposed.--The largest fine thus far assessed against one person for violations of the migratory bird treaty act, \$2,700, was imposed in Federal court at Portland, Me., on January 29, 1930, for killing eider ducks. Aided by his employees, a resident of Boston, Mass., who was gunning in Washington County, Me., in December, 1929, killed eider ducks in violation of the Federal law. For use as evidence 90 of the ducks were seized, and a criminal information was filed. The defendant pleaded guilty, whereupon the court stated that the character of the violation warranted a severe penalty and that the fine would be \$30 for each eider duck killed, which for the 90 birds amounted to \$2,700. The fine was promptly paid. The disposition of this case should serve as a warning to gunners who are inclined to kill migratory game birds for which no open season is prescribed or to hunt other game out of season. The evidence in the case was obtained by United States Game Protector B. E. Smith, assisted by U. S. Deputy Game Warden William A. Foley.

Penalized for Hunting from Automobile.--The first convictions for hunting migratory game birds from an automobile were obtained in Federal court for the southern district of Texas during January, when three defendants pleaded guilty, two being required to pay fines, and the other sentenced to one hour in the custody of the marshal.

Treaty-Act Cases Terminated--Reports Received during January

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> | <u>Fine</u> |
|------------------------------|--------------|--------------|---|-----------------------------|
| Blackwell* | 1 | Illinois | Killing a grebe from a motor boat | \$25 and costs of \$17 |
| Clarkson | 1 | Texas | Hunting, killing, and possessing mourning doves in close season | \$10 |
| " | 1 | " | Hunting migratory birds from an automobile; possessing sandpipers | \$5 |
| " | 1 | " | Hunting from automobile and killing least bitterns | One hour custody of marshal |
| " | 1 | " | Hunting and killing ducks in close season | One day custody of marshal |
| " | 1 | " | Hunting and possessing mourning doves in close season | \$25 |
| " | 1 | " | Shooting from an automobile and killing sandpipers | \$5 |
| Kelsey, Winnie** | 2 | Florida | Hunting ducks and coots from a motor boat | \$100 each |
| Merovka, Riddick, Dickerson* | 1 | Tennessee | Hunting ducks from a motor boat | \$100 and costs of \$20 |
| " " | 1 | " | Hunting ducks from a motor boat | \$25 |
| Oberhaus* | 1 | Alabama | Shooting at ducks from a motor boat | \$30 |
| Pacetti*** | 1 | Florida | Possessing ducks in storage in close season | \$5 |
| Shaver | 1 | Minnesota | Possessing ducks in storage in close season | \$25 |
| " | 1 | " | Possessing ducks in storage in close season | \$10 |
| Shaver, Rogalla* | 1 | " | Selling ducks | \$25 |
| Shaver, Vogel* | 1 | " | Hunting ducks after sunset and selling ducks | \$25 |
| " " | 1 | " | Selling ducks | \$25 |
| Smith, Foley* | 1 | Maine | Killing and possessing eider ducks | \$2,700 |
| Whitehead | 1 | Georgia | Killing and possessing robins | \$5 |

Treaty-Act Cases Reported to Solicitor during January

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> |
|--------------------------------|--------------|--------------|-------------------------------------|
| Oberhaus* | 1 | Alabama | Shooting at ducks from a motor boat |
| Perry, Anderson**, Concannon** | 2 | Kansas | Killing ducks from a motor boat |
| Smith, Foley* | 1 | Maine | Killing and possessing eider ducks |

* U. S. Deputy Game Warden.

** Deputy State Game Warden.

*** Former U. S. Game Protector.

THE SURVEY

ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE

CREDIT FOR MATTER REPRINTED FROM THESE PAGES SHOULD BE GIVEN TO THE BIOLOGICAL SURVEY AS A BUREAU, NOT TO "THE SURVEY" AS A PUBLICATION

Vol. 11

Washington, D. C., March 31, 1930

No. 3

GENERAL NOTES

Attends Sportsmen's Meetings.--Mr. Redington on March 5 attended the annual meeting of the League of Ohio Sportsmen, in Columbus, Ohio, and made a short address on the work of the Biological Survey in game protection. On the next day he attended the Ohio Conservation Convention in the same city.

Bird Protection in Scotland.--Nature (London) for February 7 stated: "A bill for the protection of wild birds in Scotland was introduced in the House of Commons on January 23, and obtained a first reading. The bill repeals the present laws relating to wild birds, other than game birds, and substitutes a simplified code the essence of which is that all birds and their eggs are to be protected at all times, with a few exceptions. The apparent simplicity of such a measure is sure to appeal to unthinking minds, but the principle of the bill is unscientific. Equally to protect all birds is in reality to favor the stronger and more successful as against the weaker...The bill has other defects. In some respects it is unnecessary legislation, for it protects many birds which require no protection. It would make the schoolboy who takes a blackbird's egg a criminal. Even more curious, while preserving intact all the laws which conserve game birds for the wealthy, it makes serious inroads against the old-established right of the ordinary man to obtain, if he can, an occasional meal on the seashore..."

Radio Talks for April.--The following Biological Survey talks for the month of April have been scheduled in the Department's radio program:

"The Economic Value of Birds," by E. R. Kalmbach, in the Farm and Home Program of the Department and the National Broadcasting Company (postponed from March 27), 1:30 p.m., E. S. T., April 8.

"Attracting Birds to the Homestead" (Uncle Sam's Naturalists series), April 11.

Mr. Redington will give a 15-minute radio address on "Wild-Life Administration" on April 3, at 5 p. m., Eastern Standard Time, from Station WRC, Washington, and other stations of the National Broadcasting Company's network. This is one of a series of talks on the subject of game management sponsored by the American Game Protective Association.

Official Publications.--The following Bureau publication was issued in March:

"Sources of Big-game Animals," Bi-1057 (mimeographed), 1 p. Received March 21.

Biological Survey Get-Together Party.--On Wednesday evening, March 19, the members and former members of the Biological Survey, with their families and friends, enjoyed what has been termed the first annual get-together party of the Survey, at the Washington Club, at 17th and K Streets. After a reception, in the receiving line of which were the Chief and Mrs. Paul G. Redington, the Assistant Secretary of Agriculture and Mrs. Renick W. Dunlap, the Director of Extension and Mrs. C. W. Warburton, and the Associate Chief and

Mrs. Walter C. Henderson, an evening of music, dancing, card and other table games, and general "visiting" was indulged in by the 160 or more in attendance. Refreshments were served shortly before midnight.

Among the former members of the Survey present were Dr. C. Hart Merriam, the first Chief, with Mrs. Merriam; Dr. Alexander Wetmore, the assistant secretary of the Smithsonian Institution, with Mrs. Wetmore; Ernest P. Walker, the assistant director of the National Zoological Park, with Mrs. Walker; Herbert S. Ward, former auditor (now practicing attorney), with Mrs. Ward, and Dr. George W. Field, who has been spending the winter in Washington. From the Secretary's office were Mr. and Mrs. F. H. Spencer and Mr. and Mrs. Ernest W. Hall. The committee on arrangements had spared no effort to make the party a great success, and had provided tally and souvenir cards decorated with conventionalized figures of the ocellated turkey and the king vulture from the ancient Mayan ruins of Central America, prizes for the card tables, and in the center of the floral decorations in the rear of the orchestra a large electrically illuminated emblem, "Wild-Life Service," painted by E. R. Kalmbach, of Food Habits Research.

The members of the committee were: James Silver, chairman, of the Predatory-Animal and Rodent Control Division; Miss Alice W. Hall, of the Administrative Offices; Frederick C. Lincoln, of Biological Investigations; A. S. Hyde, of Food Habits Research; Miss Elsie M. Galloway, of Fur Resources; Mrs. May R. Jeffries, of Land Acquisition; and W. R. Dillon, of Game and Bird Conservation. During the evening the committee was ably assisted by Mrs. Frederick C. Lincoln, who had been asked to look after the entertainment of those not dancing. The highest commendation was heard on all sides of the efficient planning and execution of arrangements by the committee, resulting in a most enjoyable evening's entertainment, one very profitable also in bringing together in social contact the members of the various divisions widely scattered in their regular official quarters, and thus tending to create a feeling of solidarity among the members of the Survey and a finer esprit de corps. The company was particularly honored in having present Dr. C. Hart Merriam, first Chief of the Biological Survey, as this was his first appearance at a social gathering for 3 years.

Visitor.--Dr. Andre Uzel, of Paris, France, a student of wild-life distribution and habits in all their phases, visited the Survey on March 17. He was much interested in the Bureau's methods of keeping records and of mapping, and especially in the use of machines as aids in sorting and tabulating data, to facilitate the dissemination of information.

Typist Appointed in Editorial Office.--Mrs. Jewell K. Burnett, of Colorado, was appointed junior clerk-typist in the Editorial Office, effective March 5. Mrs. Burnett was formerly employed in the Internal Revenue Service, Treasury Department.

Congratulations are extended to Mr. and Mrs. Paul H. Oehser on the birth of a second son, Richard Edgbert, on March 16. Mr. Oehser is assistant editor of the Bureau.

Former Survey Member with Census Bureau.--Former associates of Louis Klein, at one time in charge of the Bureau's Mails and Files, will be interested to learn that he is now connected with the Census Bureau, Department of Commerce, as chief special agent and supervisor of the distribution and manufacturing census in the Scranton, Pa., district. Mr. Klein is making his headquarters in Scranton while conducting his new work.

Former Editor of Survey Dies.--Word has been received of the death on March 17, 1930, at Fall River, Mass., of John Austin Farley, who during part of the year 1904 was editor of the Biological Survey. For many years Mr. Farley was connected with the Massachusetts State Board of Agriculture in ornithological work associated with the late Edward Howe Forbush. Mr. Farley was a well-known field ornithologist.

BIOLOGICAL INVESTIGATIONS

Studies Rodent Problems.--Dr. W. P. Taylor, during the early part of February, worked on rodent study plots and other rodent problems at the Rincon Ranger Station and at the Santa Rita Range Reserve in Arizona. During the last week of the month he visited the Wichita National Forest in Oklahoma, going over it by automobile and airplane. While at Lawton, Okla., he spoke at a meeting of the Rotary Club, at which addresses were also made by representatives of the Izaak Walton League and the Forest Service.

Progress in Forest and Wild-Life Studies.--Oliver L. Austin, Jr., attended a meeting of the State forest protection board at Milwaukee, Wis., early in February, in pursuance of his desire to become informed regarding all the problems involved in efficient forest administration in that region. About the middle of February he made a trip to Cass Lake and to the Superior National Forest, Minn. Mr. Austin has employed most of his time, however, in familiarizing himself with the local fauna and flora, and in getting acquainted with the various organizations with which he is cooperating.

T. D. Burleigh has definitely taken up the work of studying the relation of wild life to the forest in the region about Asheville, N.C. Emphasis so far has been laid on the local distribution of birds and mammals, and collections have been made to aid future work in the identification of species. Notes on altitudinal migration of birds have been made, and studies of feeding habits as they relate to forestry problems have been instituted. The purchase of a small truck promises to facilitate greatly the work of this important station.

Addresses Biological Society.--Vernon Bailey addressed the Biological Society of Washington on the evening of March 22 on "Some Biological Problems of the Grand Canyon Region," his talk being illustrated with slides and motion pictures.

Collaborator Appointed.--Edward C. M. Richards, consulting and operating forester, of New York City, has been made a collaborator of the Bureau, effective April 1. Mr. Richards plans to study forestry-game management in Europe during the coming summer, and the Bureau will be greatly interested in the results of his investigations.

Ecological Work of the Survey Commended.--In his article on animal ecology in the 14th edition of the Encyclopedia Britannica, C. S. Elton has the following to say: "The fine work of the American Bureau of Biological Survey, both in the United States of America and in Canada; Wisenberg-Land's comprehensive studies of the freshwater animals of Denmark; the work of Annandale in India, and of Johansen in Arctic Canada and Greenland; these are examples of the movement for obtaining an organized knowledge of the ecological distribution of animals." This appreciative comment on our work from one of the world's leading animal ecologists is gratifying.

FOOD HABITS RESEARCH

Duck Sickness in Louisiana.--According to the information received as a result of E. R. Kalmbach's trip to Louisiana, the malady among the wild ducks there is apparently due to wholesale lead poisoning. Previous investigations of duck sickness in Louisiana have led to the same conclusions, and there now seems to be no doubt that lead poisoning can occur on so large a scale as to simulate an outbreak of infectious disease.

Continues Quail Studies.--Herbert L. Stoddard during the month made inspections of quail areas in South Carolina with a view of recommending improvement, and revisited the region of the Cooperative Quail Investigation in southern Georgia and northern Florida. He also made a trip to the mid-West, attending to present cooperative projects and making arrangements for new ones.

Inspects Proposed Refuge Site.--C. C. Sperry in company with Mr. Dieffenbach, in charge of the Division of Land Acquisition, recently visited an area in South Carolina that has been offered on favorable terms for a Federal migratory-bird refuge. In addition to a good place for birds in general, the area was found to be an important resort for oyster catchers and willets. Colonies of black skimmers and herons also occur there, and in winter the place is visited to a considerable extent by wild fowl.

FUR RESOURCES

Talks at Extension Conference.--At the weekly extension conference of the Department, on March 19, Mr. Ashbrook gave a talk on "Furs and Fur Farming" and showed pelts of the various species of fur animals. About 60 persons were present.

To Study Embryology of Fur Animals.--On March 7, Mr. Ashbrook and Dr. J. E. Shillinger conferred with a member of the department of embryology, of the Carnegie Institution, at Baltimore, Md., regarding a proposed study of breeding problems of fur animals.

Visits Muskrat Areas.--Doctor Shillinger made several short trips during the past month to the muskrat-producing areas of eastern Maryland, Delaware, and New Jersey. The production of muskrats on the Maryland and Delaware peninsula this year is below average, but the New Jersey take is estimated as normal. The animals generally are in good condition and the furs of splendid quality.

Returns to Fur Farm.--Dr. Karl B. Hanson returned to the Fur-Animal Experiment Station, at Saratoga Springs, N. Y., on March 5 after spending five weeks at the University of Minnesota, working with Dr. Robert G. Green on the investigation of diseases of fur-bearing animals and on pathological material collected on fur farms in the East during the past season. Doctor Hanson is enthusiastic about the development of the work and feels that Doctor Green and his associates at the university are to be congratulated on their accomplishments.

Gives Illustrated Talk.--John W. Meyer, director of the U. S. Rabbit Experiment Station, at Fontana, California, on March 7 gave a talk, illustrated by lantern slides, on the rabbit industry at a meeting of local rabbit breeders at Glen Aven, California. On February 22 he gave a radio talk on the same subject.

PREDATORY-ANIMAL AND RODENT CONTROL

Visits Michigan and Wisconsin.--During the first part of March, W. E. Crouch went to Michigan and Wisconsin to assist H. P. Williams in starting cooperative work for the control of predatory animals in Michigan and to confer with O. L. Coleman relative to similar operations in Wisconsin and Minnesota. Excellent cooperation is being provided in Michigan, and indications are that some good work will be accomplished. Mr. Coleman now

has the field work well under way in Wisconsin and Minnesota. Before cooperative predatory-animal hunters could be employed in Wisconsin, it was necessary to hold State civil service examinations to obtain a list of eligibles. As a result of these examinations seven hunters have been appointed.

Cyanide Proves Effective in Rat Control.--Leo K. Couch, leader of rodent control in the Washington district, reports that by using cyanide gas pumps 1,110 rats were destroyed in two days on the city dump at Tacoma, Wash.

Addresses Arizona Cattle Growers.--D. A. Gilchrist, leader of predatory-animal and rodent control in Arizona, attended the annual convention of the Arizona Cattle Growers Association at Nogales, February 18 and 19, and talked on the subject "Jack Rabbits or Steers?" Mr. Gilchrist stated that with the full cooperation of the stockmen in Arizona the quantity of forage now available on 27,000,000 acres of rodent-infested land can be doubled through rodent-control operations.

Heavy Coyote-Infestation.--L. L. Laythe, leader of predatory-animal and rodent control in the Colorado district, reports that the predatory-animal work conducted on one of the ranches in his district indicates the possibility of a heavy infestation of coyotes. Last year the owner of the property lost twelve of the pure bred Hereford calves that he raises for select trade. Since last November, however, one of the predatory-animal hunters has taken 67 coyotes within the boundaries of this ranch, which should give relief from depredations for the present year at least.

Predatory Animals Cause Heavy Losses.--A. E. Gray, leader of predatory-animal control in Oklahoma and Arkansas, states that during February he received reports of losses in his district caused by predatory animals as follows: 15 cattle, 79 goats, 123 hogs, 123 turkeys, 294 chickens, and 5 geese--estimated to have been worth approximately \$2,347.

Appreciate Predatory-Animal Work.--Hunter S. J. Nolan, working in Oklahoma, received a letter from the president of an Oklahoma bank, commending his work as follows:

"I want to express my appreciation of the very efficient work you have accomplished in eradicating the wolves from our ranch. I understand that you have captured thirteen wolves on the John Cain Ranch in which I am interested. I am also advised that you have killed twenty-one wolves to date in our immediate vicinity."

Mr. Gray received the following letter, showing appreciation of the work done by Hunter J. A. Woodward:

"I have lived on Brush Creek in Perry County. For forty years I've suffered great losses from wolves and bobcats. I estimate the average of my loss about \$300 per year. You can multiply forty by three hundred and you have my loss of \$12,000. Now I am 75 years of age. In my aged years, I could use this \$12,000 the demons have caught from me in cattle and hogs in the past, but it is gone. For the past fifteen months we have had a Government trapper, J. A. Woodward, who has done great work in this line, and must say there's not a man more suitable than Uncle Bud is, as we call him here. He told me last week that he had caught seventy-three wolves and bobcats. My three sons and I are located here in the stock business and now none of us have heard a wolf howl in some time and if we do we will just notify Uncle Bud and he will get a trap on his foot in a few nights for he sure knows his stuff when it comes to that. I want to thank the State and Government and all connected in this work for the favors."

Hunter Accidentally Killed.--Hunter Rupert G. Hughes, who has been employed in the cooperative predatory-animal work in New Mexico for the past two years, was accidentally shot through the right side by his own rifle, which exploded in its case, probably killing him instantly. So far as known, no one witnessed the accident, but it is supposed that as Mr. Hughes was picking up the gun it dropped from its scabbard, butt end down, which caused it to discharge. The accident probably occurred on February 17. The Bureau extremely regrets this accident, and the loss of Mr. Hughes will be felt in the organization.

New Predatory-Animal Control District.--The Bureau has entered into an agreement with the Michigan Department of Conservation, effective March 1, to undertake cooperative predatory-animal work in that State. H. P. Williams, who has been connected with the Bureau practically from the beginning of its predatory-animal work, and who has had much experience in wolf-control, has been detailed to take charge. Outstanding among Mr. Williams's many accomplishments in predatory-animal work is the capture of the famous Custer wolf. Many other notorious wolves have been taken by him since he entered the service of the Bureau, the majority having been killed with his rifle. He also spent nine months investigating the relation of wolves to game animals in Alaska. For several years he has been assistant leader of predatory-animal control in the Wyoming district.

Hunter Cheney Returns to Wyoming.--Lawrence Cheney, who was temporarily assigned to the State of Virginia to carry on work in the control of bobcats in cooperation with the State Department of Game and Inland Fisheries, after a successful period of 6 months' work returned to Wyoming the first of March to resume work in that State.

Appointment.--C. E. Gillham was appointed, effective March 1, as agent to assist D. A. Gilchrist in predatory-animal work in the Arizona district. Mr. Gillham is a former employee of the Biological Survey, having been at one time assistant to M. E. Musgrave in Arizona, and having had charge of the predatory-animal work in Illinois. His qualifications and previous experience will make Mr. Gillham a valuable addition to the personnel in Arizona.

Rabies in Oregon.--Stanley G. Jewett, leader of predatory animal control in Oregon, has detailed hunters to assist in checking an outbreak of rabies in coyotes in Harney Valley, Oregon. It is reported that 52 cattle have died from attacks by rabid coyotes in that valley.

Tularemia Contracted from Coyote.--In the Public Health Reports (vol. 45, no. 9) of February 28, 1930, the case is detailed fully of a white laborer contracting tularemia in Lincoln County, New Mexico. The patient had cut his left index finger slightly with an ax, after which he disposed of the carcass of an adult coyote he had killed and skinned the evening before. As he wore no gloves he undoubtedly contaminated the cut at that time. The blood serum tested at the Hygienic Laboratory confirmed the diagnosis of tularemia. "It more conclusively establishes the coyote as a definite source of infection for this disease. Only one previous case of tularemia contracted from the coyote has been reported in literature. That case, occurring in Montana, resulted from the bite of a coyote pup." The foregoing is of sufficient interest to leaders to warrant sending additional warnings to predatory-animal hunters to exercise the utmost care in skinning coyotes.

Jack Rabbits Damage Orchards in Utah.--R. S. Zimmerman, leader of rodent control in Utah, reports that in response to a request from orchardists along the foothills of the Wasatch Range adjacent to Brigham City, a campaign for the control of jack rabbits was conducted early in February. Jack rabbits have been particularly destructive in the newly planted orchards in this area. Several thousand trees died after being girdled during the winter of 1928-29. One orchardist lost more than 1,000 trees in 1929. In the spring of 1929 he planted 2,500 young trees and protected them with mesh wire. When the snow became so deep, however, that the wire protectors proved ineffectual and rabbits began to damage the upper branches, he requested assistance from the Survey's office in Salt Lake City. At the time poison was placed along the foothills between Brigham City and Perry, the snow was about two feet deep. On the night of February 4, a line of poison was placed at right angles to the rabbits' trails leading from the mountain side into the orchards. The area was revisited on the following morning and good results rewarded the efforts of the previous day. Additional bait was placed in ravines and small draws leading down from the mountain. The owner reported later that no further damage was sustained by the orchard.

Rat Campaigns in Utah.--A successful rat campaign, which was financed by the banks, business houses, civic clubs, and farm bureau of Brigham City, Utah, was concluded on February 22. The cooperators furnished the poison free to the citizens of Brigham. Red squill was used almost entirely and with great success. One poultry raiser reported the loss of 200 baby chicks through rat depredations prior to the campaign. The cooperation at Brigham was genuine; fruitgrowers, poultrymen, dairymen, and even the high-school students and faculty assisted. The Bureau motion picture "How to Get Rid of Rats" was given three showings during the week. This is the second rat campaign conducted in Utah during the winter. Another, at Spanish Fork, is in process of organization.

Pocket Gopher Damage in Indiana.--G. C. Oderkirk, of the Eastern Rodent-Control District, reports that pocket gophers have practically destroyed a young orchard of nearly 200 cherry trees near Gary, Ind. There are isolated records of the occurrence of pocket gophers east of Gary, but this is believed to be the first record of extensive injury by this rodent so far east.

Sympathy is extended to Mrs. Bessie M. Smith, clerk in the office of the Eastern Rodent-Control District, who was called to her home at Mount Carmel, Ill., on March 14, by the death of her father.

LAND ACQUISITION

Concludes Survey of Savannah River Refuge.--Arthur A. Riemer has recently finished a precise survey of the Savannah River Bird Refuge situated on the Savannah River and within the States of South Carolina and Georgia, and has established and marked the boundaries. This work will greatly facilitate the administration of this important sanctuary.

Returns to Upper Mississippi River Refuge.--At the conclusion of a temporary detail in Washington, Robert Rutherford proceeded on February 21 to Winona, Minn., to undertake work incident to the acquisition of lands yet to be acquired for the Upper Mississippi River Refuge.

Appointment.--Joseph Williams, of North Carolina, was appointed junior soil surveyor in this Division, effective March 3.

Detailed to Washington.--Albert J. Rissman, who is attached to the party directed by Daniel H. Janzen, is on temporary detail to the Washington office to help assemble and compile data resulting from the field examinations that have been made up to this time.

Progress of Appraisal Parties.--Mr. Janzen's crew during the past month has completed the examination of a proposed refuge site on the eastern shore of Virginia, and is now engaged in the examination of one that has been recommended on the eastern shore of Maryland. Upon the completion of this assignment it will proceed to the west shore of Virginia to inspect areas that have been recommended for purchase.

Carey H. Bennett's party has completed the examination of a site in southwestern Alabama and the report on the area has been submitted. The field work on an extensive section in western Florida, believed to be attractive to migratory birds, has also recently been concluded. Field office work is now being conducted in connection with assembling the data required on this project.

Another party, headed by Harold W. Hicks and including Joseph Williams, junior soil surveyor has taken to the field this month. This crew is examining a unit in the northwestern part of Missouri. Before leaving that State all available sites in it will be examined.

Since the beginning of the fiscal year more than a million acres embraced within proposed refuges have been examined. This total comprises thirty areas, situated in 21 States.

GAME AND BIRD CONSERVATION

Visits New Orleans.--Mr. Dillon spent several days during the early part of March, assisting Protector F. A. Johnson, of New Orleans, La., with his duties. Mr. Johnson's district is an important one from the standpoint of migratory wild fowl and, although he has been in Louisiana but a relatively short time, having come from Colorado to that State, he is rapidly becoming familiar with the various bird-concentration areas. At the office of the conservation commissioner, Mr. Dillon was advised that apparently there was a large increase in the number of woodcock observed in Louisiana this year. One of the Louisiana conservation agents stated that he could not recall seeing in his parish for many years past so many woodcock as he saw there this year. Following his stay in New Orleans, Mr. Dillon conferred with Mr. I. T. Quinn, the State game commissioner, in Montgomery, Alabama, where similar reports of the increase of the woodcock in Alabama were received.

Observe Wild-Fowl on Chesapeake Bay.--Talbot Denmead and U. S. Deputy Game Warden Moody Creighton, with Dr. H. C. Oberholser, of the Division of Biological Investigations, left Washington on March 8, on the motor boat Curlew for a cruise down the Potomac River and up Chesapeake Bay to observe wild-fowl conditions. Mr. Denmead left the party at Baltimore, and U. S. Game Protector L. A. Branchaud took his place.

Game-Law Enforcement Investigations.--Game Protectors George M. Riddick, of Little Rock, Ark., and L. J. Merovka, of Memphis, Tenn., have been making investigations in connection with the enforcement of the Migratory Bird Treaty Act in western Oklahoma and northwestern Texas, and Protector Frank Clarkson has been working in central and north-central Texas. Protector L. A. Branchaud, whose headquarters are at Washington, D.C., assisted Protector O. D. Steele with investigations along the eastern shore of Virginia and Maryland during the first week in March.

Game Warden Shot.--U. S. Deputy Game Warden D. E. Adams, of Dexter, Mo., while performing active duty on February 19 was shot by a suspected Federal game-law violator at Hot Pond, about 12 miles south of Dexter. The first charge struck Adams in the legs, and as he turned to draw his revolver the second struck him higher on the body, some of the shots hitting him in the face and head. He then drew his revolver and fired twice at his assailant, apparently slightly wounding him. The assailant remained in hiding for several days, but finally surrendered and was placed under bond. Later he was arraigned in the State court at Bernie, Mo., and after the presentation of testimony, and on motion of the prosecuting attorney, the case was dismissed.

Sympathy is extended to U. S. Deputy Game Warden John P. Heller, of St. Louis, Mo., in the sudden death of his mother.

Vast Number of Ducks Seen in New Jersey.--U. S. Deputy Warden Theo. Weilly, of Salem, N. J., reports that on February 28 about 30,000 ducks, mostly pintails and some black ducks, came in with the tide at the mouth of the Salem River, producing a wonderful sight. Mr. Weilly states that some of the ducks came within 300 yards of his house.

Picturesque Florida Bird Life.--The following interesting item is quoted from a letter, dated March 15, from Game Protector J. V. Kelsey: "Beginning at a point approximately 28 miles west of Miami, and extending many miles in a westerly direction, one may witness a gathering of birds that beggars description. Egrets, snowy herons, Louisiana, great blue, little blue, green, yellow-crowned, black-crowned, and night herons--added to these many wood and white ibises, mix them all up, add several species that I have failed to mention, scatter them over a vast territory in countless numbers, and even then the mental picture falls far short of reality. The sight must be witnessed to be believed. Next to the gathering of birds upon the overflowed lands east of Lake Okeechobee following the hurricane of 1928, the mixed convention of bird life along the Tamiami Trail is the largest I have ever seen. And this is but one of several places in the area embraced in the Everglades where I know thousands of birds to be congregated. These conditions not only speak well of the present, but they foretell great possibilities for the future."

Sandhill Cranes in Texas.--Protectors Riddick and Merovka report seeing thousands of sandhill cranes on Soda Lake in northwestern Texas on February 23. Protector Clarkson reports making similar observations at the same place on March 6.

Deputy Warden Can Not Be Located.--Mail addressed by the Survey to U. S. Deputy Game Warden George G. Thompson, formerly of Monticello, Fla., has been returned unclaimed, and we therefore are unable to communicate with him. Last information was to the effect that he was somewhere in Indiana. We shall appreciate any information that anyone can furnish us concerning his present address or whereabouts. Mr. Thompson holds U. S. deputy game warden badge No. 531.

Walker Goes to Zoological Park.--Ernest P. Walker, formerly assistant in reservations administration of the Biological Survey, was transferred, effective March 1, 1930, to the Smithsonian Institution to become assistant director of the National Zoological Park, Washington, D.C. Mr. Walker has been connected with the Biological Survey since 1919, when he was made United States game protector for the Arizona and Southern California District, with headquarters at Phoenix. Always interested in birds and mammals and in nature studies generally, both before and after his high-school days in Indiana and Colorado,

he began work on a survey of the birds of the State of Wyoming while a student at the University of Wyoming, the results of which were published in 1915 in collaboration with the head of the department of zoology of the university. In 1913 Mr. Walker was appointed a deputy fur warden under the Bureau of Fisheries for work in Alaska, and soon thereafter was placed in charge of the work of that bureau in southeastern Alaska on special investigations and enforcement of the fisheries and fur laws, a position that he held until his appointment with the Biological Survey. In 1921 he returned to Alaska as chief fur warden in charge of Biological Survey work for the protection of land fur-bearing animals, soon after that work was transferred from the Bureau of Fisheries to the Biological Survey by Congressional action. Three years later, when the administration of the Alaska game was similarly transferred, Mr. Walker was made chief Alaska game warden, a position that he held until the establishment of the Alaska Game Commission under the new law of 1925, when as chief resident representative of the Biological Survey in the Territory he was made a member of the Commission, serving as its first executive officer and fiscal agent, and had much to do with the original organization of the work of the Commission. In 1927, Mr. Walker was transferred to the headquarters offices of the Biological Survey in Washington on work connected with the administration of the bureau's extensive system of bird refuges and game preserves, a position that he has held up to the present. He was joint author of a bulletin of the Department of Agriculture, No. 1350, Blue-Fox Farming in Alaska, and has made a number of contributions to mammalogy and ornithology in scientific journals.

Frank L. Earnshaw, administrative assistant of the Biological Survey, who has been a member of the Bureau since 1907, in the capacity of law clerk and assistant in game conservation, has been assigned as acting in charge of the section of reservations administration.

Lake Malheur Notes.---A fire that had been started to burn over a tule area on a ranch adjacent to the Lake Malheur Bird Reservation in Oregon, on February 15, got beyond control and entered the tule area of the reservation, where it was soon extinguished. So far as could be ascertained, no damage to bird life occurred as it was too early in the season for the birds to use the area covered by the fire.

Canada geese were observed near the station headquarters at Lake Malheur Bird Reservation on February 2, and on February 13 hundreds of these birds were feeding in the flooded area north of the station in the vicinity of the Blitzen River channel. An old crippled gander that came to the refuge last spring for feed and protection and remained until he had recovered, appeared again on February 5, and as stated by Protector George M. Benson, he "took charge of all the other tame 'honkers' (kept at the headquarters), and has mated with one of the tame geese." Pintail ducks and a few other species are also arriving at Lake Malheur.

Elk Refuge Notes.---Shortly after the feeding of the elk began on the Elk Refuge in Wyoming, on February 6, the weather turned warm and much of the snow melted, but during the last week in February about eight inches more fell. By the 15th of the month, many of the elk that had come to the feeding grounds were again scattered over the refuge and adjoining ranches, but a few remained on the feeding ground on the Germain Tract. The feeding of the elk on the Germain Tract was discontinued on February 18. On March 1, there were approximately 1,800 elk on the feeding ground near headquarters and about 2,000 on the Izaak Walton League Addition near the Sheep Creek foothills, at which date about 450 tons of hay had been fed.

State Game and Fish Commissioner Bruce Nowlin arrived at the refuge on February 24, and spent several days observing the condition of the elk and considering the possibility

of making a count of the Jackson Hole herd. He conferred with Forest Supervisor A. C. McCain and Protector Almer P. Nelson regarding the matter, and it was decided that it would not be possible to obtain an accurate count at this time, because, owing to the mild winter, the elk are widely scattered, many of them staying in the timbered regions. Mr. Nowlin snow-shoed over the Continental Divide from Wind River and went down Fish Creek and the Gros Ventre River. He found the elk generally distributed over the Gros Ventre region, a number of the animals remaining far back in the mountains, some being seen near the top of the Divide.

Birds in Tampa Bay Region.---Reservation Protector Harold P. Bennett reports that the birds are arriving at Indian Key Refuge, Fla., and that American egrets and early nesting birds are numerous on the shores of Tampa Bay. He states that an alligator has brought her brood of 20 young back to the mouth of the creek in the vicinity of the refuge, her summer quarters, which is thought to be a sure sign that winter is over in that region.

Surplus Buffalo Shipped from Wind Cave Preserve.---Three young buffalo bulls have been shipped from the Wind Cave Preserve, S. Dak., to the city parks of Lincoln, Nebr., Aberdeen, S. Dak., and Kalamazoo, Mich.

Death of Antelope at Sullys Hill.---Two of the young buck antelope at Sullys Hill Game Preserve, N. Dak., have died---one on February 25 and one on March 2. A veterinarian will be brought to the preserve to examine the carcasses now buried under the snow to ascertain, if possible, the cause of death. This band of antelope has been given careful attention by Protector Wesley D. Parker and has heretofore been in excellent condition. The grouse on this area went to the open prairie during the pleasant weather in February, but later returned to the timbered area to feed. This has been a severe winter at Sullys Hill Preserve and, at the end of February, practically all the roads in the vicinity were impassable except with teams and sleighs.

Loss of Deer at Bison Range.---Protector Frank H. Rose reports that considerable losses have occurred in the deer herds on the Bison Range in Montana during the winter.

Jurors Find Night Hunter Guilty.---After deliberating for more than three hours a jury in Federal court at Spokane, Wash., on February 24, 1930, returned a verdict of guilt against a hunter charged with hunting and attempting to kill wild ducks after sunset in Spokane County, Wash., on December 11, 1929. A fine of \$25 was imposed by the court. The evidence in the case was obtained by United States Game Protector Ransom.

Treaty-Act Cases Terminated--Reports Received during February

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> | <u>Fine</u> |
|---------------------------------|--------------|---------------|--|-----------------------------|
| Charlton, Miles* | 1 | West Virginia | Killing a duck from a motor boat | \$5 |
| Eckert* | 2 | Massachusetts | Hunting ducks after sunset | \$10 each |
| Gieseler* | 1 | Illinois | Killing and possessing a grebe | \$10 and costs |
| Harris, Jr.* | 1 | " | Killing and possessing wood ducks | \$15 and costs of \$35 |
| Hoffman, Oberhaus* | 1 | Alabama | Hunting ducks from a motor boat | \$25 |
| Jans* | 2 | Illinois | Possessing insectivorous birds | \$10 and costs each |
| Kelsey, Winne** | 1 | Florida | Killing a coot from a motor boat | \$5 |
| Merovka, Riddick, Dickerson* | 1 | Tennessee | Hunting ducks from a motor boat | \$25 and costs |
| Pertuit*, Berthelot** | 1 | Louisiana | Killing and possessing ducks in close season | Serve 30 days in jail |
| Pertuit*, Durand* | 1 | " | Killing and possessing a wood duck | \$10 and costs |
| Ransom | 1 | Idaho | Possessing a wood duck | \$25 |
| Ransom, Fenstermaker** | 1 | Washington | Hunting ducks after sunset | \$25 |
| Ransom, Worcester** | 1 | Idaho | Possessing a wood duck | \$5 |
| Roahen | 1 | Illinois | Killing and possessing wood ducks | \$15 and costs of \$35 |
| | 1 | " | Killing ducks from a motor boat | \$15 and costs of \$35 |
| | 1 | " | Possessing golden plovers | \$5 |
| " | 2 | " | Hunting ducks after sunset | \$15 and costs of \$35 each |
| | 2 | " | Killing coots from a motor boat | \$15 and costs of \$35 each |
| Scholler*, Jans* | 1 | " | Killing and possessing meadow-larks | \$10 and costs |
| Scholler*, Peterson* | 1 | " | Hunting coots in close season | \$5 |
| " " | 1 | " | Killing and possessing a grebe | \$5 |

* U. S. Deputy Game Warden

** Deputy State Game Warden

Treaty-Act Cases Reported during February

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> |
|------------------------------------|--------------|----------------|---|
| Charlton, Leggett*, McDonough* | 4 | Michigan | Selling ducks |
| Charlton, McDonough* | 1 | " | Selling ducks |
| Charlton, Miles* | 1 | West Virginia | Killing a duck from a motor boat |
| Chatten* | 1 | Illinois | Offering for sale and selling ducks |
| Clarkson, Hampe* | 1 | Texas | Offering ducks and geese for sale |
| Hoffman, Oberhaus* | 1 | Alabama | Hunting ducks from a motor boat |
| Holmes, Schuenke** | 2 | Iowa | Killing and possessing wood ducks |
| Lane | 1 | North Carolina | Hunting waterfowl from a motor boat |
| Lane, Lewark | 3 | " " | Hunting and killing migratory water- fowl after sunset |
| Leichhardt, Ryckman** | 1 | Oregon | Possessing geese in storage in close season |
| Merovka, Riddick, White** | 4 | Arkansas | Possessing wood ducks |
| Perry, Lawhorn*, Nill*, Yowell* | 1 | Kansas | Hunting and possessing ducks in close season |
| Perry, McQuary**, Wilson** | 1 | Missouri | Possessing ducks in storage in close season |
| Ransom, Fenstermaker** | 1 | Washington | Hunting ducks after sunset |
| Riddick, Thomason** | 1 | Arkansas | Possessing wood ducks |
| " " | 2 | " | Possessing meadowlarks |
| Roahen, Jans* | 1 | Illinois | Killing and possessing a robin |
| Roahen, Lawrence* | 2 | " | Killing ducks from a motor boat |
| Shaver | 3 | Minnesota | Possessing ducks in storage in close season |
| Shaver, Cardoff** | 1 | " | Possessing ducks in storage in close season |
| Shaver, Hall* | 1 | Wisconsin | Offering to sell mounted specimens of a green heron, least bittern, willet, and jacksnipe |
| Shaver, Vogel* | 7 | Minnesota | Offering for sale and selling ducks |
| " " | 1 | " | Offering for sale and selling ducks and coots |
| Smith, Wallace* | 1 | Maine | Killing a duck |
| " " | 1 | " | Killing a duck from a motor boat |
| Steele, Tyler* | 1 | Maryland | Possessing ducks in close season |
| Whitehead, Smith** | 4 | South Carolina | Hunting and killing ducks after sunset |

* U. S. Deputy Game Warden.

** Deputy State Game Warden.

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No. 4

GENERAL NOTES

Lectures.---Mr. Redington gave an illustrated lecture on "Denizens of the Alaskan Wilderness" at the Carnegie Museum, in Pittsburgh, Pa., on March 30, and on the next day addressed the Women's Club, at Sewickley, Pa., on the same subject, using a film of the American Museum of Natural History. On April 5 he lectured on "Alaska and Some of Her Interesting Inhabitants" before the Biological Society of Washington, this talk also being illustrated with motion pictures.

Expounds 3 R's of Wild-Life Conservation.---The 3 R's of wild-life conservation are Research, Regulation, and Refuges, said Mr. Redington in an address delivered under the auspices of the American Game Protective Association, on April 8, over Station WRC and associated stations of the National Broadcasting Company. In elaborating upon the subject, Mr. Redington said that RESEARCH is of primary importance in determining policies for the preservation and increase of birds, animals, and fishes, and that the necessary facts can be developed only through constant scientific study, and now, as never before, earnest and efficient scientists are supplying administrative branches of game conservation with needed information. "REGULATION has to do with the game and fish laws, designed to prevent the wastage and abuse that follow greed, ignorance, and commercial exploitation. There must be regulations prescribing open seasons on game and fish, bag limits, and similar matters, and the gunners, trappers, and fishermen themselves will find it each to his individual advantage to abide by these laws. Unless we can be assured of a general observance of and respect for such laws, we who are now living are very likely to destroy the objects of pursuit or to bring them dangerously close to the point of extermination. REFUGES for wild animals and birds must be established on the breeding grounds of migratory birds, along the flight lanes, in concentration areas, and on the wintering grounds. Enlargement of the existing system of Government sanctuaries for migratory birds was authorized in 1929 by the Migratory Bird Conservation Act. A more extensive wild-life sanctuary program has never before been undertaken, and its accomplishment will go far toward perpetuating America's valuable birds.

"Wild-life conservation programs," concluded Mr. Redington, "must be supported by a sound public sentiment, inspired and developed by continuous educational measures. We must know the full significance of our 3 R's. New generations must be educated. From their numbers will come those individuals equipped and competent to direct and administer our resources in wild animals and birds."

Urges Conservationists to Foster Bird Refuges.---In his address before the annual meeting of the Izaak Walton League of America at Chicago on April 25, Mr. Redington stressed the necessity for local support of migratory-bird refuges. In order to create a well distributed system of large, principal refuges, he said, there must be withdrawals from the millions of acres of wildfowling area now available to gunners. Mr. Redington stated that

in the preliminary work of acquiring suitable areas for national wild-fowl sanctuaries, the Bureau has encountered opposition among local sportsmen, and that sometimes there has been a misconception of the purpose by others. "Sporadic opposition based on a misunderstanding of facts," he said, "can be effective in hampering and delaying the operations of the Government, but in the long run, with refuges established, elsewhere, the objecting district will itself be the greatest sufferer from its own lack of foresight."

Emphasizing also the continued need for game-law enforcement measures, Mr. Redington deplored the practice of "game bootlegging," under which game-law violators obtain birds by illegal methods to supply wealthy patrons who lack the skill to get their own share in the manner contemplated by the conservation laws. The remedy he proposed is for the "members of conservation organizations to build up and strengthen in every locality a spirit of insistence for the strict observance of reasonable restrictions. Experience," he said, "indicates that the courts are quick to respond to organized opinion and indicate approval by the application of effective penalties."

United States Will Send Exhibits to International Fur Show.--The participation of the Department of Agriculture in the International Fur Exposition to be held at Leipzig, Germany, from May 31 to September 30, 1930, has been assured by recent action of Congress in making the necessary appropriation. The Departments of Agriculture and Commerce are cooperating in the preparation of material to be exhibited by the United States Government through the Office of Exhibits of the Department of Agriculture. In preparing the exhibit particular attention will be given to the products of American fur farms as well as to the furs taken in trapping and hunting. Besides the modern exhibits of furs, hunting trophies, equipment and methods and processes of the fur industry, a series of exhibits representing the uses of fur in all ages, the history of the chase, wild game in art, and the importance of conservation measures will be among the important features. This Bureau will be represented at the exposition by Frank G. Ashbrook, head of the Division of Fur Resources, and Lisle Morrison, in Charge of Exhibits; the Office of Exhibits by C. H. Cross and H. F. Marti; and the Bureau of Fisheries by Edward M. Ball.

The German Government has invited the United States and other fur-producing nations to send representatives to the First International Fur Congress, to be held in connection with the Exposition, June 22-29. The fur congress will take up problems common to the industry throughout the world. Efforts will be made to establish standards for the grading of pelts, uniform names for similar products, and standard policies for terms and deliveries. Customs requirements and regulations will also come up for discussion along with other questions vital to the international fur trade.

Description of the Exhibit.--The center feature of the exhibit as planned illustrates the size and importance of the fur industry of the United States, and consists of a scene showing in the foreground the trapper, the hunter, and the bundles of furs being transported by dog sled, by airplane, and by boat, and in the distance city skyscrapers, representing the manufacturing and wholesale branches of the industry. From radio towers a message moves across the sky giving interesting facts and news of the fur industry. This scene rests on what appears to be a large slab of granite bearing the title "Our Fur Industry is Built on a Firm Foundation," and this in turn is supported by three massive stones representing conservation, production, and utilization, the three principles that have contributed so much to the stability of the industry. At the left are shown data regarding the imports, exports, and total production of furs, and on the right our principal fur animals and some

facts and figures regarding them. To emphasize the huge production in this country there is a large clock bearing the message that every time the pendulum swings, 2 pelts are taken, 4 pelts are imported, 1 pelt is exported, and \$16 worth of furs are sold at retail. The quality of the furs of the United States may be determined by examination of a durability scale, which shows on a percentage basis the relative durability of all furs.

Miniature fox, mink, raccoon, and rabbit farms built to scale will be on display. The plan of the farms and the location of the pens, kennels, and buildings illustrate the methods of raising these fur animals in captivity.

Six groups comprising the most important species of fur animals--beaver, muskrat, otter, mink, weasel, fisher, marten, raccoon, wolverene, fox, skunk, opossum, and fur seal--mounted in characteristic poses in their natural habitats with painted backgrounds and carefully modeled foregrounds depicting late fall and winter scenes--are included in the exhibit. The seal group contains 8 beautiful specimens. Some of the predatory animals that prey upon the livestock and game of the range country in the United States are also shown as mounted groups.

How the fur seal was saved from extinction by international cooperation is shown in an exhibit that emphasizes by means of a lighted glass chart how the number of seals declined rapidly until protection by international agreement was obtained, after which the numbers showed a marked increase. A picture of the signing of the agreement occupies the center of this exhibit. On the left is a scene showing destruction by pelagic sealing before the agreement, and on the right the seals under protection.

Good specimens of raw and dressed pelts taken from the principal fur animals of the United States will be on display and the various processes necessary to transform muskrat fur to "Hudson seal" and rabbit fur to "near-seal," "sealine," and others, will be shown by the actual pelts in the various stages of processing. The methods of dressing and dyeing Alaskan seals will also be demonstrated in a similar manner.

Series of colored lantern slides illustrating the fur animals of the United States and their distribution, and the various phases of fur farming, including rabbit raising, will be shown. A collection of beautiful transparencies showing the seal industry and blue-fox production on the Pribilof Islands will also be on display.

A series of oil paintings will be provided to illustrate important developments in fur-trade history from the time the white man first set foot upon the North American Continent until the present day. These paintings will be supplemented by a collection of the weapons typical of the various stages of development in the fur trade.

A three-real motion picture entitled "The Fur Industry of the United States" has been made especially for the exposition. It is designed to include all phases of the fur industry, beginning with trapping the fur animals in the wild and concluding with technicolor pictures of manikins wearing the latest styles of fur garments. Other motion pictures, "How to Handle Foxes" and "The Muskrat Industry in Maryland," will be shown continuously during the exposition.

Visiting Field Offices.--E. J. Cohnan, in charge of the Office of Accounts, left on April 10 for an extended field trip in western States. He will inspect practically all the field stations of the Bureau from the standpoint of accounts and give instructions in field accounting methods and fiscal regulations. He will return to Washington about June 15.

Attend Banquet.--The Survey was represented at the annual banquet of the Maryland Game and Fish Protective Association, held at the Leonard Hotel in Baltimore on March 24,

by Mr. Redington, Mr. Henderson, Talbott Denmead, F. P. Callaghan, and Frank G. Grimes. The chief speakers and guests of honor were Senator F. C. Walcott and Governor Albert C. Ritchie.

Visitors.--Among visitors to offices of the Bureau early in April were members of a delegation visiting Washington in the interests of the Cheyenne Bottoms Refuge. The group was headed by Alva Clapp, State fish and game warden of Kansas and member of the Migratory Bird Treaty Act Advisory Board.

Honored by Foreign Scientists.--Dr. Alexander Wetmore, assistant secretary of the Smithsonian Institution, formerly on the staff of the Biological Survey, has recently been elected an honorary member of the Deutsche Ornithologische Gesellschaft, and a foreign member of the British Ornithologists' Union.

Abroad in Interest of Whales.--According to Science, April 4, Dr. Remington Kellogg, assistant curator of mammals of the United States National Museum, formerly associate biologist of this Bureau, sailed for Rotterdam on March 24, at the invitation of the League of Nations, to attend a session of the League on the subject of whaling and on practical methods for conserving the supply. Doctor Kellogg is chairman of the technical committee of the Council for the Conservation of Whales, under the auspices of the American Society of Mammalogists, which he represented at the meeting in the capacity of advisory expert. After the session, on April 3, he plans to visit European museums, chiefly for the purpose of studying their cetacean material.

Honored by Federal Employees.--At the annual meeting of the Agricultural Branch of the Federal Employees Union No. 2, on April 4, Frank G. Ashbrook, in charge of the Division of Fur Resources, was elected president to succeed Harry Irion, of the Forest Service. Mr. Ashbrook was formerly first vice-president of the Agricultural Branch. A. H. Howell, and Mrs. Viola S. Snyder, of the Division of Biological Investigations, were re-elected third vice-president and representative on the board of Union No. 2, respectively.

"A Contribution to the Mammalogy of the North Mountain Region of Pennsylvania" is the title of a book recently received by the Survey from the author, Morris Miller Green, of Ardmore, Pa., and inscribed as follows: "To the Biological Survey of 1930 from its errand boy of 1887." The book is finely executed, with a colored plate of the Allegheny long-tailed shrew by Allan Brooks, and constitutes a most valuable addition to the mammal literature of the Eastern States. Mr. Green was connected with the Survey from 1887 to 1891.

To Work in Colorado District.--Morris Troshinsky, messenger in the Washington office for the past year and a half, has been transferred to the office of L. L. Laythe, Denver, Colo., and will be employed during the spring and summer in the rodent-control field work. He expects to return to Washington in the fall.

Official Publications.--The following official publications of the Bureau were issued during the month, including five articles in the 1930 Yearbook of Agriculture covering the year 1929 (issued April 9) not separately reprinted:

"Migratory-Bird Refuges To Be Increased Under New Conservation Act," by H. P. Sheldon. Yearbook 1930, p.383-386.

"Migratory Status of Mourning Doves Is Proved by Banding," by Frederick C. Lincoln. Yearbook 1930, p. 386-389, illus.

- "Rabbit Raising for Food and Fur Studied at Experiment Station," by Frank G. Ashbrook. Yearbook 1930, p. 439-442, illus.
- "Rodent Control Aided by Mixing Bait at Cooperative Stations," by W. E. Crouch. Yearbook 1930, p. 459-462, illus.
- "Hunters' Licenses Issued by States, With Total Money Returns; for the Seasons 1926-27 and 1927-28," compiled in Division of Game and Bird Conservation. Yearbook 1930, Table 585 p. 1043.
- "Dealers in Quail Food Plants," Bi-1064 (mimeographed), 5 p. Received March 31.
- "Laws and Regulations Relating to Game, Land Fur Bearing Animals, and Birds in Alaska," Alaska Game Commission Circular No: 7, 30 p., maps. Issued April 2.
- "How To Make a Cat Trap," by James Silver and Frank N. Jarvis. Leaflet 50-L (revised), 4 p., illus. Received April 3.
- "Mouse Control in Field and Orchard," by James Silver. Farmers' Bulletin 1397-F (revised), 14 p., illus. Received April 10.
- "National Wild-Life Reservations," compiled in Division of Game and Bird Conservation. Miscellaneous Publication 51-M (revised), 10 p., 2 maps. Received April 21.

Radio Talks for May.--The following Biological Survey talk for the month of May has been scheduled in the Department's radio program:

"Some Troublesome Birds (Crow, Starling, English Sparrow)" (Uncle Sam's Naturalists Series), May 9.

BIOLOGICAL INVESTIGATIONS

On Field Trip.--Doctor Bell left Washington on April 9 for a trip of several weeks. He addressed the Eleventh Annual Meeting of the southern division of the American Association for the Advancement of Science, at Memphis, Tenn., on April 9, on the relation of wild life to the forests. After visiting New Orleans, La., for a day or two about the middle of the month, he proceeded to Tucson, Ariz., where he participated in discussions and conferences on forest and range problems, and attended the inauguration of Dr. H. L. Shantz as president of the University of Arizona. Before returning to Washington, Doctor Bell plans to visit the Elk Refuge at Jackson, Wyo., and some of our stations in the Upper Mississippi River region.

Deer Investigations in Pennsylvania.--On March 28 Vernon Bailey visited the State College of Pennsylvania, where experiments were being conducted in cooperation with the State game department in feeding mountain laurel and rhododendron to deer to test the effect of poisonous qualities of the plants. Sixteen last-year's fawns fed exclusively on these plants for 40 days showed no symptoms of poisoning. The next day, in company with the executive secretary of the Pennsylvania Game Department and an official of the Bureau of Animal Industry, Mr. Bailey visited Pike County, in northeastern Pennsylvania, where were found the carcasses of considerable numbers of deer that had died from starvation during the past winter. The bodies of 42 last-year's fawns and 2 adult deer were counted by the local wardens in a small area. Many of the stomachs contained laurel, but the evident cause of death was starvation resulting from local overstocking of the range and exhaustion of the winter food supply.

Punch-Card System Expedites Handling of Bird-Banding Returns.--The records showing the return or recovery of banded birds are now being handled by means of the punch-card system. Each card bears at its left end the written record, the same information being indicated in the right portion by punch holes. Through this system the cards can be run through an electrically operated sorting machine at the rate of 400 a minute, and any class of information sorted out. An employee of the American Wild Fowlers, who was recently on duty in the Washington office, is a skilled punch-card machine operator, and she was able to bring up to date all the old records pertaining to waterfowl and most of those dealing with small birds. It is estimated that the return file contains about 30,000 cards that are now punched and ready for use. Probably 10,000 remain to be done, and the available personnel is now giving attention to these.

Longevity of Osprey.--A recent banding return record for an osprey breaks all previous American longevity records for a banded bird. It was banded as a fledgling at Gardiners Island, N. Y., on June 15, 1914, and was shot at West Durham, N. C., on April 4, 1930, nearly 16 years later.

FOOD HABITS RESEARCH

Stoddard Accepts Attractive Offer.--The following is a convincing testimonial to the fine impression that Herbert L. Stoddard has made upon the sportsmen supporting the Cooperative Quail Investigation, quoted from the American Field of April 12, 1930: "A warranty deed was recently recorded at Cairo, Ga., involving the gift of 1,000 acres of land in the southeastern part of Grady County from L. S. Thompson, wealthy sportsman, to Herbert L. Stoddard, of the U. S. Biological Survey, a quail expert. Mr. Thompson is one of a group of wealthy men who own extensive game preserves in Grady and Thomas Counties, in Georgia, and Leon and Jefferson Counties, just across the line in Florida. The tract which Mr. Thompson has deeded to Mr. Stoddard consists of about half of his holdings in Grady County and is designated as The Hall. While Mr. Thompson has modestly refrained from making a public statement in regard to his gift, it is understood that it was made with a view of inducing the quail expert to return to that section to continue his extensive investigations of the habits of quail, with a view of increasing the number there."

Mr. Stoddard will be employed in further research work upon quail and will be free to act as a consulting engineer in projects involving improvement of environmental conditions for game. He will remain with the Biological Survey for a few months, probably until the end of the summer, so as to be present when needed in connection with the preparation for publication of the final report of the quail investigation. The Biological Survey greatly regrets to lose the services of Mr. Stoddard but wishes him the best of success in his new venture.

Appointment.--Wallace B. Grange, of Wisconsin, was appointed, effective April 7, cooperative agent to succeed Mr. Stoddard, after a period of training with him, as adviser in the study of the food, environment, and general welfare of upland game birds in the Middle West, in cooperation with the Universities of Michigan, Wisconsin, and Minnesota and the Sporting Arms and Ammunition Manufacturers' Institute, of New York City. Mr. Grange for a few months in 1925 was connected with the Forest Service in Wyoming and Colorado; in 1926 he was employed by the Biological Survey as field assistant in ornithological work in Florida; and since that time he has been with the Museum of Zoology of the University of Michigan and

superintendent of game of the State Conservation Commission of Wisconsin. He received his college training at the Universities of Wisconsin and Michigan and is an enthusiastic student of natural history.

Mr. Grange is now working with Mr. Stoddard and will so continue with the exception of a few short periods of leave needed to allow him to attend to unfinished work for the Wisconsin Conservation Commission. The itinerary of the two men will carry them through the northern Mississippi Valley States in which cooperative projects under the fellowship arrangement are now in effect, and later to Missouri, where it is expected that a similar fellowship for the study of bobwhite will be established, and then to Arizona where arrangements will be made for the study of southwestern quail.

Migratory Bird Refuge Inspections.---The spring campaign for completing the preliminary program of refuge-site inspections is under way. A. C. Martin and F. A. Warren are beginning in Texas, and Neil Hotchkiss and L. E. Ekvall in Florida, from which States they will work northward. Mr. McAtee made a brief inspection of areas in western New York that local interests greatly desire to see made into Federal bird refuges.

Growth of Seed Collection.---The collection of seeds in the Division of Food Habits Research is one of the best in the country, and possibly the best so far as native species are concerned. A count of the material in it on April 15 shows that there are more than 5,000 samples, representing 3,247 species and 1,112 genera of plants. The collection is steadily growing, both through the efforts of our own men and through the purchase of samples of seeds from dealers.

FUR RESOURCES

Fur-Animal Slides in Demand.---A member of the fur trade in New York City writes that he recently delivered a lecture on furs and fur animals before the officials of a large New York department store and illustrated his talk with lantern slides prepared by this Division in cooperation with the Office of Cooperative Extension Work. He reports that the pictures were well received and states that he intends to use them again in a talk at Boston.

Attends Western Fur Conference.---John W. Meyer, director of the Rabbit Experiment Station, at Fontana, Calif., represented the Bureau at the Western Fur Conference of the National Association of the Fur Industry at Los Angeles during the week of April 28. He explained the work conducted at the station and extended an invitation to those in attendance to visit it on May 1. The new motion picture, "The Fur Industry of the United States," prepared for the Leipzig Exposition, was shown.

Represents Bureau at Fur Show.---Mr. Ashbrook was invited to attend the fur show held by Sears, Roebuck & Company at Chicago, on April 22 and 23, and to judge the furs. As he was unable to attend, Kenneth F. Roahen, United States game protector, of Peoria, Ill., was recommended by the Survey to represent the Bureau.

Lantern Slides of Fur Animals Being Prepared.---Lantern slides are being made to illustrate the North American fur animals, their distribution, and all phases of fur farming, including rabbit raising, for use at the Fur Exposition at Leipzig. One set will carry the legends in German, and another is being prepared in English for use in this country.

Whelping Season at Fur-Animal Experiment Station.--Forty-seven fox pups have been born at the U. S. Fur-Animal Experiment Station since April 1. This good reproduction rate may be explained by the improved methods of feeding and care of foxes that are being tried out. Two litters of martens have been born, one on April 16 and the other on April 17, to females that had never before produced young in captivity. The period of gestation was approximately 9 months.

Studies Outbreak of Fox Disease.--Dr. K. B. Hanson spent April 15 and 16 on a fox ranch at Boonville, N. Y., obtaining data on an outbreak of infectious encephalitis among foxes.

Fur Film Shown.--The motion picture entitled "The Fur Industry of the United States," which, as noted earlier in this issue, is to be part of the exhibit of this Department at the International Fur Exposition and Congress, at Leipzig, Germany, this summer, was given a preliminary showing at the Office of Motion Pictures on April 19. The picture was directed by Raymond Evans, of the Office of Motion Pictures, the various parts of the film being collected and titled by Frank G. Ashbrook, of the Division of Fur Resources, and Lisle Morrison, in charge of Biological Survey exhibits. The picture shows the various methods employed by trappers from the time of the pioneers to the present. It portrays the three sources of pelts now depended upon by the fur trade for its supply: Trapping in the wild and maintaining fur farms and muskrat marshes. The scenes depicting fox farming, mink farming, rabbit farming, and raccoon farming were filmed chiefly at the U. S. Fur Animal Experiment Station, at Saratoga Springs, N. Y., and at the Rabbit Experiment Station, at Fontana, Calif., and also at large commercial fur farms in various parts of the country and on blue-fox farms on the Pribilof Islands, Alaska. The muskrat industry as carried on in extensive marshes of Louisiana, Maryland, and other States is well illustrated. Steps in the handling of pelts at receiving houses, the grading, marketing, auctioning, and tanning and dyeing of skins, and the processes in manufacturing fur coats constitute an interesting feature of the film. One section deals with the fur-seal herds of the Pribilofs.

PREDATORY-ANIMAL AND RODENT CONTROL

On Field Trip.--W. E. Crouch left Washington on April 12 on an extended circuit through the field that will take him first to the southwestern districts. He was joined in Oklahoma City on April 13 by E. J. Cohnan, in charge of the Office of Accounts, who is also making a tour of field offices. Mr. Crouch and Mr. Cohnan will be together much of the time during the next few weeks.

Coyote Control in Colorado.--In the last issue of THE SURVEY mention was made that Hunter Cooper had taken 67 coyotes from a ranch near Roggen, Colo. During March he took five more; thus a total of 72 coyotes have been captured this season from this one ranch. Last year the owner, who raises purebred Hereford stock, lost 12 calves, estimated to be worth \$250 each when born, through the depredations of coyotes.

The Wary Rat.--In a campaign against rats at a poultry and supply warehouse in Utah, all attempts to entice these rodents with a variety of baits failed. It was noticed that the rats' favorite occupation was to chew the paper labels from cases of eggs packed for shipment. These labels were usually attached late in the afternoon to be in readiness for morning freight. V. L. Johnson, assistant in the Utah district, decided to poison the

paste used in putting the labels on the boxes. Paste poisoned with strychnine was applied and the labels were left on the floor between the egg crates. Some were fastened to the boxes with thumb tacks. This proved the undoing of the rats and offered a means of control--but not for long. A night or two afterward the trick failed. Traps are being used as a clean-up method.

In control operations against rats at Mapleton, Utah County, Utah, more than 200 baits of Hamburger and red squill were used at a single poultry house. When a check of results was made, it was found that all but two baits had been taken. The Spanish Fork, Utah, cooperative campaign just completed proved to be the most successful undertaking against rats thus far carried on in that State from the standpoint of number of cooperators and quantity of material used. More than 200 two-ounce packages of red squill were distributed free by the city. The Department's rat film was again pressed into service to interest citizens in the campaign.

Wild Turkeys on Nebraska National Forest.--Louis Knowles, leader in the South Dakota district, reports that 10 or 12 of the wild turkeys obtained through the Biological Survey and planted on the Bessey Division of the Nebraska National Forest near Halsey, Nebr., by the United States Forest Service and the Nebraska Game Department, were seen on a trip made to the forest during the past quarter. Part of the birds liberated have become so tame that the nursery foreman anticipated considerable trouble from them in his seed beds. All the turkeys that had been wild enough to leave the protection of the nursery had disappeared. Mr. Knowles said that while riding over the pine plantations two or three miles from the nursery he noted several places where turkeys had been killed, presumably by coyotes.

Rodent-Control Progress in Eastern District.--The report of James Silver, leader of the Eastern Rodent-Control District, for the quarter ending March 31 shows that 48 county, city, and town rat campaigns were conducted, in which 12,891 pounds of prepared rat bait were distributed on 21,799 premises at a total cost to cooperators of \$4,976.60. Red-squill baits were used almost exclusively, and repeated check-ups indicated that 100 per cent clean-ups were made on more than 75 per cent of the premises treated. During the quarter 2,250 pounds of field-mouse poison were distributed. In addition 58 demonstrations were given with an average attendance of 23, and 52 night meetings were held with an average attendance of 63. The rodent-control films were shown 30 times with an average attendance of 208. Sixty-five articles on various subjects were published.

Control Operations Extended in Wyoming.--In compliance with a request received from the woolgrowers of Uinta County, Wyo., arrangements have been made to extend predatory-animal control operations into that part of the State. As State and Federal funds had already been allotted to other counties on a 50-50 basis with association and county funds, no money was available for work in Uinta County. The county commissioners, however, furnished \$2,100 to provide for one hunter, and the Uinta County Woolgrowers' Association contributed \$1,680 for another. The only assistance this Department can render at the present time is to furnish supervision, poison, traps, and ammunition; but Uinta County will be given first consideration if increased funds become available or if any association or county co-operating at the present time should discontinue its work. Leo Smith and Ben Kroll, two experienced hunters from Sweetwater County, were transferred to Uinta County on April 1.

Seven Black Sheep in One Herd Killed by Predator.--An unusual incident occurred recently six miles north of Green River, Wyoming, when some predatory animal entered a herd of sheep and killed seven black sheep used as markers. No others were killed.

Cooperative Work in Lincoln County, Wyo.--Albert M. Day, leader of predatory-animal and rodent control in Wyoming, who recently attended the annual meeting of the Lincoln County Woolgrowers' Association, reports that it was decided to afford the stockmen protection from losses through predatory-animal depredations on sheep on the summer ranges by having hunters precede the sheep from the winter ranges into the mountains. The members of the association seem pleased with the protection afforded them by the hunters and are anxious to increase the size of the force as soon as more money can be obtained. The association spent \$5,865 for salaries of hunters during the past year.

23 Tons of Poisoned Grain Used in 23 days.--In an endeavor to reach the goal "Timely and Proper Application of Poisons," the ranchmen of Modesto County, Calif., directed by Federal and State officials, have just concluded the largest organized ground-squirrel-control project ever conducted in the county. Forty-six thousand pounds of thallium-poisoned grain were used in approximately 23 days' operations under the direction of 9 county inspectors and 43 county supervisors. Each of these 52 leaders had a crew of about 3 men, which made a total of more than 200 men engaged in the control work each day during the campaign. The county paid each supervisor \$5 a day, including horse hire, and the ranchmen paid for the services of the crews and for the material used. The percentage of kill was high; in many instances on small areas every ground squirrel was killed.

Talks on Rodent-Control Work.--Ira N. Gabrielson, leader of rodent control in Oregon, gave several talks during March on rodent-control work: One on the conservation work of the Biological Survey before an audience of 130 at Salem; one on rodent control in bulb plantings before 100 bulb growers at Silverton; and another on rodent control before a class in agriculture at Forest Grove. Mr. Gabrielson also gave two mole-trapping demonstrations in Clackamas County.

Rodent Control Demonstrations in South Dakota.--During March, Assistant Leader H. H. Haecker visited Hamlin, Codington, Brown, Roberts, and Walworth Counties, S. Dak., and prepared 150 bushels of grain for rodent bait. He held 22 demonstrations in rodent control at which 109 persons were present.

"Holstein" Rats.--The following is based on a news item received from the county agent of Kennewick, Wash.:

"It is probable that many people of this section have seen the spotted rats that seem to be peculiar to this part of the State, at least for a radius of 60 to 70 miles from Kennewick. It remained, however, for Leo K. Couch, assisted by the county agent and a farmer near Prosser, to bring to the surface a large number of these rats this week. The farmer had complained of losing considerable mash each night, apparently from rats. A trip was made to the farm with a cyanide duster, and this was used in treating burrows beneath the floor of the poultry house. The first application brought two rats to the surface. While Mr. Couch stated that usually not more than 10 per cent of the rats would get to the surface, there were some misgivings regarding the effectiveness of the treatment, with the burrows so close to the floor. One section of the floor was raised and 7 or 8 additional rats found that had already succumbed, besides 2 or 3 still active rats, which it had not been possible to reach with the gas. Further treatment brought the total dead rats to 54. A large percent-

age of these were of the spotted type. Whether or not the spotting is influenced by the fact that this is known as a Holstein farm, one may draw his own conclusions."

Cooperative Predatory-Animal Control in Texas.--C. R. Landon, leader of the predatory-animal control work in Texas, reports that one of the most important pieces of work in his district in February was an agreement entered into with the State Game, Fish, and Oyster Commission to cooperate in a poison campaign against predators in southwestern Texas. The commission's interest in this matter came from its desire to protect fawns and other animals and birds from the depredations of coyotes, which are numerous there. The commission bears the cost of materials used and furnishes game wardens with necessary crews. The Biological Survey is cooperating to the extent of supervising the work, preparing the poison, and furnishing some of the hunters.

Hearings on Ten-Year Program.--On March 29, Secretary Hyde transmitted a favorable report on the ten-year predatory-animal-control program to the committees on agriculture in the Senate and the House of Representatives. Included in the report was a notation from the Bureau of the Budget to the effect that the authorization as contained in the bills introduced by Mr. Leavitt and Senator Norbeck was not in conflict with the President's financial program. Hearings on the Leavitt bill were held on April 29 before the House Committee on Agriculture, of which Congressman Haugen, of Iowa, is chairman.

Trapped.--The following is an extract from the Monthly News Letter issued by the Colorado District.:

"Yes, you can sure tell Spring is here. There is romance in the air, especially so in our office. Our good and faithful clerk, Miss Idella Ustrud, who has handled the work of this office so efficiently for the past eight years, has succumbed to Cupid's arrow emanating from the bow of one Robert P. McFarland, ambitious Assistant in charge of the northwestern part of the State. He evidently is a trapper of no mean ability. He who can come into our midst and take so highly prized game ought to have a great future. The nuptials will be held some time in August. Most hearty congratulations."

Successful Wolf Work In Oklahoma.--Hunter Melvin Phillips, working in Carter County, Okla., continues to hold the record for the number of wolves taken. Since August, 1929, he has taken 85 wolves in the Arbuckle Mountains with but little change in his trap lines.

Losses in Oklahoma During Past Quarter.--A. E. Gray, leader of predatory-animal control in Oklahoma, reports the following losses in livestock and poultry from predatory animals for the quarter ended March 31: Cattle, 28; sheep, 108; goats, 346; hogs, 282; turkeys, 403; chickens, 509; and geese, 14; their value aggregating \$5,427.

Bounty Payments in Wisconsin.--O. L. Coleman, leader of predatory-animal work in the Wisconsin-Minnesota district, states that during the fiscal year ended June 30, 1929, Wisconsin paid bounties on coyotes and wolves amounting to \$83,170. He reports that coyotes are more or less prevalent over the entire area of both of these States, although the infestation varies in different localities, that bobcats are rather scarce, and that a few lynxes occur in northern Wisconsin and Minnesota. He considers that the wolf is probably more numerous in the northern portions of his district than in any like area in the United States. Mr. Coleman further reports that all relationships with officials of the State conservation departments have been extremely pleasant.

LAND ACQUISITION

Progress of Appraisal Parties.--During March D. H. Janzen's crew completed the examination of a unit in Maryland and is now engaged in the examination of another in Virginia; Cary H. Bennett's party has been working on proposed units in Florida; and H. W. Hicks's party is continuing work in Missouri, where it has been engaged during the past month.

New Bird Refuge in Oklahoma.--Under Executive order of March 26, 1930, President Hoover has set aside as a refuge and breeding ground for birds a tract of land in Alfalfa County, Okla., containing approximately 20,600 acres. The new reservation will be known as the Salt Plains Wild Life Refuge. The examination and appraisal of this unit were made by Robert M. Rutherford and party in November, 1929, and as it developed that most of the lands suitable for refuge purposes were in public ownership, steps were taken to have this area set aside by Executive order. This new refuge will constitute an important link in the newwork of refuges to be established throughout the country under the migratory bird conservation act.

New Bird Refuge in Georgia.--On April 3 President Hoover signed an Executive order setting aside Wolf Island, off the coast of Georgia, between Doboy Sound and Altamaha Sound, as a refuge and breeding ground for wild animals and birds. This island was formerly used by the Department of Commerce as a lighthouse station, but had been abandoned. Although the acreage is comparatively small (575 acres), the area is well known as a resting, feeding, and breeding ground for waterfowl and other aquatic birds. This new refuge will be known as the Wolf Island Wild Life Refuge.

States Pass Enabling Acts.--It is of interest to note that Kentucky and Nebraska have passed enabling acts authorizing the Federal Government to purchase lands for the establishment of migratory-bird refuges.

GAME AND BIRD CONSERVATION

Take Short Trips.--Early in April Mr. Sheldon was in New York and Mr. Dillon in New Jersey in connection with matters pertaining to the administration of the migratory bird treaty act.

Addresses Game Conservation Meeting.--Talbott Denmead addressed the annual meeting of the Liberty Road Game and Fish Protective Association at Randallstown, Md., on March 20, on the subject of the value of birds.

Returns to Washington.--Game Protector L. A. Branchaud and U. S. Deputy Game Warden Moody Creighton, with Dr. H. C. Oberholser, of the Division of Biological Investigations, returned to headquarters on March 30, from an extended investigational and patrol trip on the Potomac River and Chesapeake Bay.

Elk Feeding Ends.--The feeding of the elk on the Elk Refuge, Wyo., ended near headquarters on March 23 and on the Izaak Walton League addition on March 26. During the last three weeks that the elk were being fed, there were approximately 7,000 elk on and in the vicinity of the three feeding grounds. Only 22 elk have been found dead on and adjacent to the feeding grounds this season, most of these being old cows. In cooperation with the Bureau of Plant Industry, plans have been outlined for conducting studies and experiments in the extermination of squirreltail grass at the Elk Refuge.

Cause of Antelope Deaths Investigated.---Dr. Ray Gaskill, of the Bureau of Animal Industry, examined the carcasses of two antelope at Sullys Hill Game Preserve, N. Dak., and reports that they died of blood poisoning resulting from abscesses in the region of the head, which were caused by sharp beards of some grain or grass penetrating the tissues. These sharp-bearded grasses are probably some species of the squirreltail grass of the West, which has proved troublesome at the Elk Refuge.

Conditions of Animals at Wind Cave.---Protector H. Harrison Hoyt reports that the game animals at the Wind Cave Game Preserve, S. Dak., are in excellent condition for this period of the year and that forage is abundant.

Disposal of Big Game at Bison Range.---During March the following big-game animals, surplus in the herds, were shipped from the Bison Range in Montana: Two young buffalo to a park at Stanford, Mont.; 7 mule deer to purchasers in California, Texas, and North Dakota; and 3 mule deer to Kansas for its new State game preserve.

Lake Malheur Notes.---The tame geese at Lake Malheur Bird Reservation, Oreg., have attracted many wild birds of the same species to the big spring at the reservation, and many battles for supremacy occur. Bluebirds are at the refuge in large numbers; also many swans and Canada geese, thousands of ducks, and a large flock of snow geese have been reported there during the past month. Protector George M. Benson states that the last swans to leave the refuge on their southern migration departed on January 20, and the first to arrive on their northern flight were seen on February 11. Thus there were only 22 days during the past year when there were no swans and very little other bird life of any kind on the refuge.

Ducks at Big Lake and Belle Fourche.---Protector Steven B. Crossley reports that a large number of mallards are roosting on the Big Lake Bird Reservation, Ark., and that he believes some of these ducks come from a distance of 40 or 50 miles to this roost. They arrive from sundown until after dark flying high, an indication to him that they are making long flights. They go to outlying sloughs to feed during the day and, on account of the protection given them at Big Lake, make the long flight to rest on the refuge. Mr. Crossley estimates that 4,000 mallards, 3,000 scaups and ringnecks, as well as teals and wood ducks are frequenting the refuge.

Fred C. Winkler, deputy reservation protector at Belle Fourche Reservation, S. Dak., reports that the ice broke in the reservoir at Belle Fourche about the middle of March, and that about the same time the ducks began to arrive. Approximately 1,500 mallards were on the refuge the last of March and the majority appeared to be in good condition.

Conditions at Conconully.---C. M. Conger, protector in charge of the Conconully Bird Reservation, Wash., reports that ducks and ruffed grouse are scarce in that locality, and that the number of land birds also is rather small. Nine deer used the refuge during the months of February and March.

Appointment.---Mrs. Mary Monroe Kraft has been given a temporary appointment as clerk-stenographer at the Bison Range to fill the position made vacant by the resignation of Miss Florence Lucille McCauley, who is now taking a course in nursing.

Resigns.--W. R. Jones, protector at North Platte Bird Reservation, Nebr., has resigned.

Visits Washington Office.--D. H. Madsen, superintendent of the Bear River Migratory Bird Refuge with headquarters at Salt Lake City, Utah, spent ten days in March at the Washington office, during which time a number of conferences were held between Survey officials and officials of the Bureau of Public Roads, relative to administration and further development of the Bear River Refuge.

Alaska Bears Still Have Legal Protection.--Erroneous statements regarding the open seasons on large brown and grizzly bears in Alaska have appeared in two recent articles in the press of the country, and the Bureau has made the following announcement to correct misleading impressions:

A recent review of the new amendments to the regulations under the Alaska game law, which become effective on July 1, included a statement from which it may be inferred that nonresidents of Alaska may hunt large brown and grizzly bears at any season of the year except in restricted areas. This may be misleading to those who are contemplating going to the Territory to hunt after July 1. The open season for nonresidents for hunting these big-game animals throughout Alaska is from September 1 to June 20. In certain areas along the Gulf of Alaska and on the Alaska Peninsula residents of Alaska are restricted to the season September 1 to June 20, but elsewhere in the Territory after July 1 they will be permitted to hunt these bears at any time of year.

The other misleading statement appeared in an article by a well-known writer in the April 12 issue of a popular weekly magazine of nation-wide circulation. In this it was alleged that all restrictions on the killing of big brown bears at any season have been removed. Nonresidents of the Territory are limited to two of these bears a season, and residents are similarly limited in the restricted areas along the Gulf of Alaska and the Alaska Peninsula, unless it becomes necessary to kill in defence of persons or property.

The big brown bears are increasing in numbers on Unimak Island, a large island maintained as a reservation for these bears and also for caribou, within the Aleutian Islands Reservation, on which the animals are protected at all times.

Importations.--Up to April 5 the total number of quail imported from Mexico this season was less than 80,000, although concessions have been granted by the Mexican authorities for the export of more than 200,000. Of this number 51,987 were entered at Laredo, Tex., 15,748 at Eagle Pass, and 8,564 at Brownsville.

A shipment of 152 yellow-naped Amazon parrots (Amazona auripalliata) from Corinto, Nicaragua, which had been held in quarantine on Hoffman Island, N. Y., since February 3 on account of the recent outbreak of parrot fever, was released on April 5 after examination by Lee S. Crandall, the Bureau's inspector at New York. Ten of the birds had died and four others were sick at the time of the examination, so that the number actually entered was 138.

Steele Addresses Meeting.--Superintendent R. C. Steele, of the Upper Mississippi Refuge addressed a meeting of the Sioux Falls (S. Dak.) chapter of the Izaak Walton League of America on April 7. He also inspected a sewage disposal plant that has been installed by the city of Sioux Falls with a view to minimize the effects of pollution on public health and wild life in that section.

Large Concentration of Bald Eagles.--Ranger Lundberg, of the Upper Mississippi Refuge, reports that on March 8 near the confluence of the Chippewa and Mississippi Rivers he witnessed probably the largest concentration of bald eagles ever observed in that section. He counted about 150 of these birds and states that there were many more in the distance.

Fined for Illegal Taking and Possession of Muskrats.--For the illegal possession of 36 muskrat pelts a resident of Wabasha County, Minn., was apprehended on March 27 by Ranger Lundberg and upon entering a plea of guilty in State court was sentenced to pay a fine of \$50 and costs. A fine of \$45 and costs of \$11.25 were assessed a resident of Wabasha County, Minn., on March 19 for taking muskrats illegally. The arrest was made by Ranger Lundberg, assisted by Deputy Ranger Berni. Ranger Lundberg also apprehended a party on March 15 for illegally possessing muskrat pelts, the case resulting in the imposition of a fine of \$20 and costs. Ranger Hall and Deputy Ranger Frerichs apprehended a resident of Houston County, Minn., on March 15 for illegal possession of muskrats pelts, and upon arraignment and plea of guilty in State court the defendant paid a fine of \$25 and costs.

Commercial Fishermen Fined.--Acting on information obtained by U. S. Game Protector P. S. Farnham, Rangers Lundberg and Hall, cooperating with Minnesota and Wisconsin State game wardens, caused the arrest of five commercial fishermen for the illegal shipment and transportation of game fish. Upon pleas of guilty in the Minnesota courts the defendants were sentenced to pay fines aggregating \$104.40 and costs of \$20.60.

Muskrat Trapping Conditions on Upper Mississippi.--The trapping of muskrats under Federal permits on the Upper Mississippi Refuge this season was initiated with the usual interest and enthusiasm on the part of local trappers. About 700 permits were issued. The season for Wisconsin was March 1 to April 10 and for Minnesota March 20 to April 15. Owing to existing State laws, no trapping was allowed on the refuge in Iowa and Illinois. Because of the extremely low stage of water in the Upper Mississippi and its tributaries this spring, many muskrats left the refuge bottoms before trapping operations began. One of the refuge beavers became entangled in a muskrat trap set near Nelson, Wis., by a Federal permittee, but fortunately the animal was caught by only one of its front feet and was extricated by the trapper without injury.

Fire Hazard Great.--The fire hazard on the Upper Mississippi Refuge this spring has been more serious than at any time in recent years. The chief causes for this condition were the unusually low stage of water in the river and sloughs and the absence of the usual spring precipitation. Thus far the refuge organization has been extremely fortunate in keeping fires under control with a minimum of damage. The important sanctuary in Buffalo County, Wis., locally known as the Chippewa Bottoms, which is bordered on two sides by railroads carrying heavy traffic, has been especially subject to fire hazard. A 24-hour a-day vigil was instituted in the lookout cabin situated on a high bluff commanding a view of the entire area. On March 31 Deputy Ranger Berni, observing a curl of smoke some miles away in the bottoms, hastened to the place, and found a small fire that was gaining rapid headway. A high wind was blowing and immediate action was necessary. Berni obtained the cooperation of a number of bridge laborers at work some distance away, and with their aid brought the fire under control and by hard effort finally extinguished it. It is thought that the blaze was started by a lighted cigar or cigarette thrown from an automobile along the ferry road, which crosses the bottoms at that point. Berni's prompt and decisive action probably prevented a devastating fire, which in a brief time could have swept over several thousand acres of most valuable sanctuary.

Raising Grain for Wild Life.--Areas are now being selected at favorable points in the Upper Mississippi Refuge for the sowing of corn, buckwheat, and other grains for wild life. It is planned to allow the grain to ripen and stand unharvested as a source of food supply and attraction for birds and game. Interesting developments from this venture are anticipated.

Metal Boat for Patrol Work.--A 15-foot steel boat was recently purchased for use in patrol work on the Upper Mississippi River Refuge and assigned to Ranger Hall.

Treaty-Act Cases Terminated --Reports Received during March

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> | <u>Fine</u> |
|---------------------------------------|--------------|--------------|---|-----------------|
| Kelsey, Winne** | 1 | Florida | Killing a duck from a motor boat | \$5 |
| Perry, Lawhorn**, Nill**, Yowell** | 1 | Kansas | Hunting and possessing ducks in close season | \$5 |
| Riddick | 1 | Arkansas | Exceeding daily bag limit on ducks | \$50 |
| Roahen, Blackwell* | 1 | Illinois | Selling ducks | \$25 |
| Roahen, Raeth** | 10 | Wisconsin | Possessing ducks in storage in close season | \$50 each |
| " " | 1 | " | Possessing ducks and coots in storage in close season | \$50 |
| Johnson | 1 | Louisiana | Killing and possessing snipe in close season; selling snipe | 30 days in jail |

Treaty-Act Cases Reported during March

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> |
|---------------------------------------|--------------|----------------|---|
| Barmeier, Adams*, Miller* | 2 | Illinois | Killing and possessing ducks in close season |
| Birsch, Bourne** | 2 | South Carolina | Hunting ducks after sunset |
| Hoffman, Odom** | 1 | Alabama | Possessing mourning doves in close season |
| Hoffman, Odom**, Watson** | 5 | " | Killing mourning doves in close season |
| Holmes, Perry, Wilson* | 2 | Missouri | Killing and possessing ducks in close season |
| Kelsey | 3 | Florida | Hunting ducks and coots from a motor boat |
| Perry, Concannon* | 1 | Kansas | Possessing ducks in storage in close season |
| Perry, Lawhorn**, Nill**, Yowell** | 1 | " | Possessing ducks in storage in close season |
| Riddick | 1 | Arkansas | Exceeding daily bag limit on ducks |
| Roahen | 1 | Illinois | Killing ducks after sunset |
| " | 1 | " | Possessing ducks in storage in close season |
| " | 1 | " | Possessing a goose in storage in close season |
| " | 2 | Indiana | Possessing ducks in storage in close season |
| Shaver | 2 | Minnesota | Possessing ducks in storage in close season |
| " | 1 | Wisconsin | Killing a yellowlegs |
| " | 1 | Minnesota | Possessing ducks in close season |

* U. S. deputy game warden.

** Deputy State game warden.

Treaty Act Cases Reported during March-Continued

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> |
|-----------------------------------|--------------|--------------|--|
| Shaver, Cardoff** | 1 | Minnesota | Possessing ducks in storage in close season |
| Shaver, Nordeen* | 3 | " | Possessing wood ducks |
| Shaver, Rogalla* | 2 | " | Hunting ducks after sunset |
| Tonkin, Leichhardt, | 1 | California | Hunting ducks after sunset |
| Gilloon**, Hammack**, Jordan** | | | |
| Whitehead | 4 | Georgia | Hunting and killing robins |
| Whitehead, Saye* | 1 | " | Killing and possessing a robin |
| " " | 1 | " | Possessing ducks in storage in close season |
| Johnson | 1 | Louisiana | Killing and possessing snipe in close season; selling snipe |

Upper Mississippi Refuge Cases Reported during March

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> |
|----------------------|--------------|--------------|--|
| Frericks* | 1 | Wisconsin | Trapping wild animals on closed area |
| Hall* | 1 | Minnesota | Carrying firearms and hunting ducks on closed area |
| Lawrence, Lange** | 3 | Wisconsin | Hunting, carrying, and possessing firearms on closed area |
| Lawrence, Stevenson* | 3 | " | Carrying firearms on closed area |

Bird Reservation Trespass Cases Reported during March

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> |
|--|--------------|----------------|--|
| Riddick, Hillhouse* | 1 | Arkansas | Hunting ducks on Big Lake Refuge |
| " " | 1 | " | Hunting and possessing fur animals on Big Lake Refuge |
| Tonkin, Gilloon** Hammack**, Jordan** | 6 | California | Hunting ducks on Tule Lake Refuge |
| Whitehead, Carter* | 1 | South Carolina | Killing ducks on Savannah River Refuge |

* U. S. Deputy game warden.

** Deputy State game warden.

THE SURVEY

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GENERAL NOTES

Completes Three Years' Service as Chief.—On May 9, on being congratulated by members of the staff on the third anniversary of his assuming the duties of Chief of the Biological Survey, Mr. Redington gave expression to the pleasure he has had in his work in the administration of wild-life matters. He stated that these years had been very happy ones for him here and that he has been much encouraged by the loyalty of the personnel. He passed over lightly a few of the troublous events that would naturally come up during any such period, stating that "we have withstood the storms and at the same time are always keeping a weather eye open for the next dark cloud." Commenting on some of the outstanding matters of the three years, Mr. Redington referred to the increase in the appropriations for the work of the Bureau and was especially gratified at the strengthening of the research program. He stated that if the appropriation bill now before Congress is passed in its present condition we shall have \$116,000 more for research than when he came to the Bureau three years ago. Along conservation lines he mentioned that the three years had seen the passage of the Migratory Bird Conservation Act, popularly known as the Migratory Bird Refuge Bill, and the settlement for the present at least of the bag-limit controversy. In connection with the progress made under the Migratory Bird Conservation Act, he called attention to the fact that the first meeting of the Migratory Bird Conservation Commission would be held on May 15, within less than 15 months after the date of the passage of the Act, for the purpose of considering proposed purchases of lands recommended by the Bureau as suitable for the establishment of refuges. He also expressed his pleasure in the recent appointment of a special committee consisting of five senators to investigate matters pertaining to the replacement and conservation of land and aquatic wild-animal life, with a view to determining the most appropriate methods for carrying out such purposes. This committee, he stated, is entirely sympathetic with the program and objectives of the Biological Survey, and consists of Senator Walcott of Connecticut, as chairman, and Senators McNary of Oregon, Norbeck of South Dakota, Pittman of Nevada, and Hawes of Missouri. This committee is authorized to hold hearings at various times and places throughout the country, and its appointment, Mr. Redington stated, was one of the events of the past three years that indicate a promising future for the conservation of our resources in wild life. The Chief was assured by those who dropped in to congratulate him that he has the heartiest support of the members of the Biological Survey, and that with a united front and absence of internal dissensions the Bureau is sure to press forward in the accomplishment of its varied program for the administration of the wild life of the country.

Mr. Henderson Visits Middle West.—After attending the convention of the Izaak Walton League of America in Chicago on April 23 and 24, Mr. Henderson returned to Washington for a few days, after which he left again for Minnesota, where with Mr. Dieffenbach on May 6 and 7 he visited Mud Lake, in Marshall County, the restoration of which as a game preserve is being strongly recommended by the people of the region. Returning to Washington by way of Winona, Minn., Mr. Henderson conferred with Superintendent R. C. Steele, of the Upper Mississippi Refuge, regarding administrative matters

Progress of Field Classification.--Copies of P. C. B. Form No. 18, "Preliminary Class Specifications of Positions in the Field Service," have recently been supplied to the bureaus, with the request that they allocate field positions to the classes established and described in this document and submit the resulting lists to the Personnel Classification Board. The Survey has nearly completed the allocations on the basis of positions as described and submitted to the Classification Board in 1928. In preparing these lists no changes occurring since the original submission of the field classification sheets have been taken into account. The primary purpose of the present list is to provide a factual basis for the tabulation of information and data that Congress will need in considering proposed legislation, and is not for finally fixing the pay status of any employee or group of employees.

It is unfortunate that the great majority of field positions have been so placed in the class specifications that employees have to be allocated in substantially the same grades in which their positions now fall, and in a few instances lower grades than those in which certain positions are now allocated, these having been placed in higher grades since the classification sheets were submitted. The Bureau's recommendations to the Personnel Classification Board were for higher grade allocations in connection with several classes of field positions. Fortunately, the bureaus are given the privilege of making comments and criticisms on the class specifications, and the Survey will take advantage of this opportunity to the fullest extent in an endeavor to have the final class specifications provide for higher allocations where these seem fully justified.

Estimates.--The Budget Bureau has issued its call for the submission of estimates for appropriations for the fiscal year 1932. The final estimate material must be in its hands by July 15, which is two months earlier than in previous years. This will entail great pressure upon the divisions and the Administrative Office in order to prepare all the detailed material required. The preliminary estimate material for consideration of the Secretary had to be submitted to him by May 26.

The Agricultural Appropriation Bill for the fiscal year 1931, which was signed by the President on May 27, carries a total appropriation for the Biological Survey of \$1,818,320. Items of \$40,000 for the protection of migratory birds, including \$10,000 for investigations concerning the destruction of young wild ducks by predatory animals; \$4,157 for laboratory work in identification of birds and mammals; and \$5,000 for the purchase of animals at the Fur-Animal Experiment Station were lost in conference. Items of \$40,000 for establishing a musk-ox industry in Alaska and \$2,000 for the study of the diseases of fur-bearing animals were approved.

Attend Annual Meeting of Mammalogists.--At the twelfth-annual meeting of the American Society of Mammalogists, held at the American Museum of Natural History, New York City, May 20-24, 1930, the following papers were presented by members of the Biological Survey: "The Control of the Coyote," by W. C. Henderson; "The Coyote--Archpredator," by E. A. Goldman; "Animal Life of the Grand Canyon" and "Kentucky Caves as Bat Refuges," by Vernon Bailey; and "Some Modern Methods of Disseminating Information Regarding Mammals," by Wm. H. Cheesman. Other members of the Bureau in attendance were Dr. T. S. Palmer, E. A. Preble, Dr. H. H. T. Jackson, Dr. A. K. Fisher, A. H. Howell, and E. M. Mills. At the annual election of officers of the society Doctor Palmer was re-elected first vice-president; Mrs. Viola S. Snyder was elected treasurer; and Doctor Jackson was chosen as an additional member of the board of directors to take the place of Mr. Preble who is an ex-officio member as chairman of the Editorial Committee. Two ex-presidents of the society were elected to honorary membership--Dr. C. Hart Merriam and Dr. E. W. Nelson, both former chiefs of the Biological Survey. The 1931 meeting of the society will be held at the Academy of Natural Sciences, Philadelphia, Pa.

Early Member of Survey a Recent Visitor.--Clark Perkins Streater, one of the Bureau's oldest field collectors of mammals and birds on the Pacific coast, was a visitor at offices of the Survey during the week of May 12. Mr. Streater joined the Biological Survey nearly 40 years ago, in July, 1890. Previous to that time he had extensive field experience in Jamaica, Porto Rico, and several of the lesser islands of the West Indies, and also in British Columbia. His first detail in the Department was in connection with the biological reconnaissance of Idaho. Later he was transferred to Texas and Mexico, and still later collected in California, Oregon, Washington, and Alaska. He retired from the Department in 1896 and has since resided at Santa Cruz, Calif. Mr. Streater was born in Portage County, Ohio, in 1866, and in spite of many years spent in business still retains his early enthusiasm for zoological collecting and his interest in mammals and birds and all the details relating to their habits and life history.

New Zealand Scientist Visits Bureau.--On April 24, Dr. David Miller, director of entomological research of the Cawthron Institute at Nelson, New Zealand, called at offices of the Survey for information and suggestions concerning methods of controlling overabundance of deer in New Zealand. Red deer, fallow deer, and the Sambur deer were introduced on the island as early as 1860, and later the wapiti and moose. As there were no native predatory or herbivorous mammals the deer have had little competition and have increased so rapidly as to overstock the island and menace even its heavy forest growth. It is now necessary to reduce the numbers of deer, and practical methods of utilizing them instead of merely destroying them are sought. Doctor Miller gave an illustrated lecture at the United States National Museum on biological conditions in relation to agriculture in New Zealand, on the afternoon of the same day.

Official Publications.--The following publications of the Bureau were issued in May:

- "Amendment [prescribing open and close seasons on marten] to Regulations Respecting Game Animals, Land Fur-bearing Animals, Game Birds, Nongame Birds and Nests and Eggs of Birds in Alaska," Supplement to Alaska Game Commission Circular 7, 2 p. Received May 3.
- "Suggestions for Beginners in Rabbit Raising," by Frank G. Ashbrook and John W. Meyer. Bi-1066, 7 p. (mimeographed). Received May 9.
- "Porcupine Control in the Western States," by Ira N. Gabrielson and E. E. Horn. Leaflet 60-L, 8 p., illus. Received May 10.
- "Index to Files of the Bureau of Biological Survey," Bi-388 (revised) (multigraphed), 31 p. Received May 17.

Radio Talks for June.--The following Biological Survey talks in the Department's radio program have been scheduled for the month of June:

- "Introducing Game Birds" (Uncle Sam's Naturalists series), June 6.
- "Poisonous Snakes," by F. M. Uhler, in the Farm and Home Hour Program of the Department and the National Broadcasting Company, 1:05 p.m., E.S.T., June 9.

BIOLOGICAL INVESTIGATIONS

Northern Elk Herd to be Studied.--A comprehensive study of the seasonal range, food habits, and wintering conditions of what is known throughout the country as the northern elk herd is provided for by a recent agreement between the Montana State Game Commission, the Forest Service, the Biological Survey, and the National Park Service. Assistant Forest Supervisor William Rush, of the Forest Service, who has had many years' experience in dealing with game problems, has been assigned to make the study. The northern elk herd, numbering

about 17,000 head, comprises the Yellowstone Park elk ranging in the northern part of the park and in the Absaroka and Gallatin National Forests. This herd migrates northward in winter to the valleys of the Yellowstone and Gallatin Rivers, Montana, and is distinct from the larger herd, which migrates southward to winter in Jackson Hole, Wyoming. In severe winters the condition of this northern herd becomes critical, many animals starving to death. The elk drift down into the valleys and, particularly in the Yellowstone, often break through fences in search of food. Because of the large number of elk involved and the difficulties to be solved in bringing about proper management of this herd, accurate scientific knowledge is necessary to determine measures to be adopted.

A Remarkable Coincidence.--A male pintail duck, banded at the Bear River Marshes, Utah, on September 10, 1929, and a female, banded on the same day at Dawson, N. Dak., 500 miles to the northeast, were both killed on the same day by the same man at the same place--Toluca, Mexico. Of the thousands of valuable and interesting recoveries of banded birds that have been reported to the Survey, this is one of the most remarkable. Toluca, where the pintails were killed, is near Mexico City, about 1,700 to 2,000 miles from the places where they were banded.

Bird Banding in Bulgaria.--Further international interest in bird banding is evidenced by a letter received from Dr. Paul Pateff, librarian of the Palais Royal, Sofia, Bulgaria, requesting information concerning traps and banding methods. Doctor Pateff states that the local museum has taken up this means of investigation. Copies of the Manual for Bird Banders and of the two bulletins containing return records were sent to him, together with a set of sample bands. Practically every important country in Europe now has an active banding project, and in addition banding is being carried on in India and Japan.

FOOD HABITS RESEARCH

Progress of Upland-Game-Bird Studies.--H. L. Stoddard and Wallace B. Grange recently completed a three weeks' field trip in Michigan, Wisconsin, and Minnesota in connection with the studies of upland game birds now being carried on in cooperation with the Sporting Arms and Ammunition Manufacturers' Institute and the State Universities. Mr. Stoddard and Mr. Grange then proceeded to Tucson, Ariz., where they conferred with officials of the University of Arizona, representatives of sportsmen's organizations, and others relative to a proposal to organize an intensive study of Gambel's quail in the Southwest. As the need for such a study is great and the facilities for carrying it on are adequate, arrangements will probably be made similar to those under which the upland-game-bird studies are now being conducted in Michigan, Wisconsin, and Minnesota. Dr. Walter P. Taylor, biologist of the Survey, stationed at Tucson, has been of great assistance in preliminary surveys of the ground. While in Tucson, Mr. Stoddard and Mr. Grange attended the Wild Life-Forestry-Range Conference held at that place and discussed the quail project with many people whom it would have been impossible otherwise to reach. On their return trip to Washington, D. C., they made a short stop at St. Louis, Mo., in the interests of possible quail studies in that region, and at Columbus, Ohio, to discuss upland-game-bird studies being undertaken by the Division of Fish and Game of that State.

Discusses Upper Mississippi River Navigation Plans.--On May 6, F. M. Uhler represented the Survey at a conference with a board of War-Department engineers and with officials of the U. S. Bureau of Fisheries, in St. Louis, Mo., and discussed the probable effects on the Upper Mississippi River Wild Life and Fish Refuge of the proposed plan for the improvement of navigation on the Upper Mississippi River. This plan involves the construction of a series of dams throughout the refuge. Mr. Uhler stressed the importance of maintaining

stabilized water levels to prevent permanent damage to the desirable flora and fauna of that region. The engineers showed a sincere desire to avoid possible damage, and are giving this aspect of the problem serious consideration in selecting the types of dams to be used.

Inspects Proposed Refuge Sites in Louisiana.--A. C. Martin and F. A. Warren, engaged in the inspection of proposed Federal migratory-bird refuge sites, are now working in Louisiana. Mr. Warren's appointment terminated on May 31, after which date he planned to return to Washington State.

FUR RESOURCES

Leaves for Europe.--Mr. Ashbrook, in company with Lisle Morrison, who is in charge of the Bureau's Office of Exhibits, sailed on the S. S. America on May 7 for Leipzig, Germany, where they will spend the summer in attendance at the International Fur Trade Exposition. Mr. Ashbrook will also study fur-trade and fur-farming conditions in various European countries. The exposition will close at the end of September and he plans to return to Washington after the middle of October. Prior to his leaving this country he spent several days with Dr. K. B. Hanson in New York, where he exhibited before the fur club a new departmental three-reel motion picture depicting various phases of fur production and the fur trade.

Inspects Muskrat Marsh Areas.--Dr. J. E. Shillinger spent May 9 to 12 investigating muskrat-farming conditions in eastern Maryland.

Argentina's Fur Industry.--A Buenos Aires dispatch to the press of May 11 states that Argentina's fur industry has progressed to a point that has induced the Government to cooperate with private enterprise in sending an exhibit to the International Fur-Trade Exposition at Leipzig this summer. This will be the first time the republic's fur industry has been represented abroad. The high prices now ruling for nutria and chinchilla skins have caused Argentina to give more attention to protecting and breeding these animals, which abound in certain parts of that country.

PREDATORY-ANIMAL AND RODENT CONTROL

Hearings on Leavitt and Norbeck Bills.--Hearings on the Leavitt Bill (H.R. 9599), authorizing the ten-year predatory-animal control program, were held before the Agricultural Committee of the House of Representatives on April 29 and 30 and on May 1. Testimony in favor of the bill was submitted by representatives of the National Wood Growers Association, the California Wool Growers Association, and the American Farm Bureau, and by several United States Senators and Representatives from Western States. Numerous telegrams and resolutions from individuals and organizations in Western States endorsing the measure were introduced into the record. Several individuals opposing the bill also were heard. A brief hearing on the Norbeck bill (S. 3483) on the same subject was held on May 8 before the Senate Committee on Agriculture and Forestry. It is anticipated that further hearings before the Senate Committee will be held in the near future. Leaders Charles G. Poole, E. R. Sans, S. G. Jewett, and C. R. Landon were called to Washington at the time of the House hearings to furnish information regarding field work in their States. During their stay in Washington they conferred with Bureau officials relative to matters pertaining to their work, including the cooperative predatory-animal operations in their respective districts.

Visit Field Offices.--Since leaving Washington in April, W. E. Crouch and E. J. Cohnan have visited field offices in Oklahoma, Texas, New Mexico, Arizona, and Colorado. From Texas Mr. Cohnan proceeded alone to the Rabbit Experiment Station at Fontana, Calif., but rejoined Mr. Crouch at Phoenix, Ariz., and they continued together through New Mexico, Arizona, and Colorado. From Colorado their itineraries call for separate routes. Advices received from districts already visited are to the effect that the conferences have resulted in much good and that considerable knowledge has been gained by the officials of the various districts concerning correct accounting procedure.

Civil Service Examinations Announced.--The Civil Service Commission has announced examinations to be held to fill vacancies in the position of assistant leader of predatory-animal control and junior leader of predatory-animal control. Applications for these examinations must be filed with the Commission not later than June 10. Copies of the announcement have been sent to all district leaders.

Effective Wolf-Control Work.--One of the speediest pieces of wolf-control work that have come to the attention of the Bureau was recently achieved near Cow Creek Mountain, in southeastern Le Flore County, Okla. During April two wolves were reported to have killed 14 head of cattle in that vicinity. Local stockman appealed to Leader A. E. Gray, of the Oklahoma district, for assistance, and Hunter Joe Vell was sent to the community to check the losses. He reached there on April 23, and on April 27 caught the male wolf. Two days later its mate was taken. Stockmen state that this female wolf was the largest ever seen in that part of the country. Because of the viciousness of these wolves, several farmers in that section of the county had kept their cows penned up for fear they would be killed. Since the capture of these animals, the depredations on cattle in that region are reported to have ceased.

Meadow Mice Damage Pine Plantations.--Ernest M. Mills, leader of rodent control in the New England States, reports that practically every tree in an 18-acre plantation of white pines was damaged by meadow mice during the past winter. In the spring of 1929, 15,000 four-year-old pine trees were set out in furrows about six feet apart. At the present time very few uninjured trees can be found.

Addresses Kiwanis Club.--D. A. Gilchrist, leader in the Arizona district, gave a talk before the Kiwanis Club of Phoenix, at its Farmers' Night Banquet, April 22, on the subject "Objectives of the United States Biological Survey in Arizona."

LAND ACQUISITION

Begins Negotiations for Purchasing Refuge Sites.--Mr. Dieffenbach recently returned from visits to Colorado, Nebraska, and Minnesota, during the course of which he began negotiations for the purchase of several areas proposed for the establishment of migratory bird refuges under the act of February 18, 1929.

Progress of Appraisal Parties.--The land appraisal crew under the direction of D. H. Janzen has completed its work in Virginia and Maryland, and is now in Delaware; Carey H. Bennett's party is at present working in Tennessee; and the crew originally in charge of H. W. Hicks has completed the work in Missouri and is now in Nebraska. Albert J. Rissman at present has charge of the last-mentioned party, as H. W. Hicks has returned to the Upper

Mississippi River Refuge, where his services are required in connection with the acquisition work there.

Passes Enabling Act.--The State of Rhode Island has passed an enabling act authorizing the Federal Government to purchase lands for the establishment of migratory-bird refuges.

Conservation Commission Holds First Meeting.--The first meeting of the Migratory Bird Conservation Commission was held in the office of the Secretary of Agriculture on May 15. In the absence of Secretary Hyde, Assistant Secretary Dunlap acted as chairman. The members present were: Secretary Wilbur of the Department of the Interior, Secretary Lamont of the Department of Commerce, Senator Hawes of Missouri, and Representatives Ackerman of New Jersey and McReynolds of Tennessee. The Commission was organized and Mr. Dieffenbach appointed secretary. At a second meeting, held on May 26, the Commission definitely approved all the purchase projects submitted by the Bureau.

Senate Passes Cheyenne Bottoms Bill.--The bill (S. 3950) authorizing the establishment of a migratory-bird refuge in the Cheyenne Bottoms, Barton County, Kansas, was passed by the Senate on May 7, and favorably reported to the House by the Committee on Agriculture. Under this bill the Secretary of Agriculture would be authorized to acquire by purchase, gift, or lease 20,000 acres of land in the Cheyenne Bottoms as a refuge and breeding place for migratory wild fowl, an appropriation of \$250,000 being authorized. Secretary Hyde has been advised by the Director of the Bureau of the Budget that this project is not in conflict with the President's financial program.

Transferred to Washington.--Robert M. Rutherford, assistant land valuation engineer in the field service, formerly stationed at Winona, Minn., has been transferred to Washington, D. C.

GAME AND BIRD CONSERVATION

Attend Izaak Walton League Convention.--Talbot Denmead attended the annual convention of the Izaak Walton League of America at Chicago on April 23 and 24, and the Sportsmen's Show held at the same time at the Stevens Hotel in that city. U. S. Game Protector K. F. Roahen and Superintendent Ray C. Steele, of the Upper Mississippi River Wild Life Refuge, also were present. Several conferences were held relative to the enforcement of the migratory bird treaty act in the Illinois River section.

Returns to Memphis.--U. S. Game Protector L. J. Merovka returned to his headquarters, at Memphis, Tenn., on May 7, after a three weeks' detail to the Washington office. After attending to some matters in Mississippi near Memphis, he left for St. Louis, Mo., where he will conduct investigations under the Lacey Act during the remainder of the fiscal year.

Make Lacey-Act Investigations.--Frank P. Callaghan and U. S. Protector P. S. Farnham were in New York City during the week of May 19 conducting investigations under the Lacey Act.

Bag Limit on Marten Prescribed for Alaska.--Secretary Hyde has prescribed a bag limit of 10 martens for trappers in Alaska during the open seasons specified for these fur bearers, by an amendment to the regulations respecting game animals, land fur-bearing animals, and

birds in Alaska, these becoming effective in the Territory on July 1, 1930. The new amendment will become effective on August 1, 1930. The previous amendments to the regulations this year had fixed the open seasons for trapping martens in Fur District 1, from December 16 to January 15; in District 2, north of the summit of the Alaska Range and Ahklun Mountains, November 16 to March 1, and south, November 16 to January 31; and in District 3, December 1 to March 31. Marten skins must be sealed with a seal prescribed by the Alaska Game Commission within 90 days after the close of the open season during which they were taken before they may be sold, shipped out of the Territory, or otherwise disposed of.

Canada Establishes Sanctuaries.--That the Dominion of Canada is continuing to fulfill its obligations under the Migratory-Bird Treaty is shown by the fact that it has established within the past year five bird sanctuaries and one public shooting ground. These are situated in important wild-fowl areas in four different provinces.

Fire at Bison Range.--On the night of May 1, the office building at the National Bison Range, Moiese, Mont., was destroyed by fire, together with all records and considerable equipment and supplies. Protector Frank H. Rose also lost valuable personal property. U. S. Game Protector George H. Mushbach and Charles S. Brothers, assistant to the Solicitor, stationed at Missoula, Mont., were appointed a board of inquiry to make an investigation, but it was found impossible to determine the cause of the fire. It is thought, however, that it was not of incendiary origin. When first discovered, the fire had gained considerable headway, but because there was little wind that night, the dwelling house, barn, and garage were not burned, although the eastern end of the dwelling was considerably scorched and blistered. The superintendent and two other employees of the Flathead Indian Reservation went to the Bison Range and did everything possible with limited facilities to extinguish the flames. They were aided by the employees of the Bison Range who were on the reservation or in the vicinity.

Elk Refuge Notes.--Protector Almer P. Nelson, of the Elk Refuge, Wyo., states that during the period when the elk were fed, from February 6 to March 26, approximately 825 tons of hay were consumed, including hay that was fed to the work and saddle horses on the refuge and to the additional teams used by the State in hauling feed to the elk. Of this quantity, 510 tons were purchased by the State game department from ranches adjacent to the preserve, and the remainder was produced on refuge lands. There remain 1,540 tons of hay available for feeding the elk that visit the Refuge next winter. At the end of April about 1,000 elk still remained on and in the vicinity of the reservation, but the majority of the animals that had been there during the winter had migrated north toward their summer range. Twelve elk are being held in a corral recently constructed for experimental purposes.

Various species of migratory birds have returned to the reservation, the latest to make their appearance being the long-billed curlew and a pair of sandhill cranes. Mr. Nelson says that the most interesting birds that visited the Refuge this spring were nine swans, which came early in April to the large springs on the preserve. They remained at the springs and on the Flat Creek area for several days; they were quite tame and a number of good pictures of them were obtained. Mr. Nelson advises that, according to what he has been able to learn, the last swan previously seen on the Flat Creek swamp was in 1915.

Inspect Florida Bird Refuges.--R. W. Williams, United States deputy game conservation officer, with headquarters at Tallahassee, and J. V. Kelsey, United States game protector, stationed at Daytona Beach, recently completed an inspection of the bird refuges in Florida.

Buffalo Calves at Wind Cave.--Protector H. Harrison Hoyt, of Wind Cave National Game Preserve, S. Dak., reports that 14 buffalo calves have been born there so far this spring and that all are in excellent condition.

Appointments.--Charles I. Park, of Key West, Fla., has been reappointed deputy reservation protector at the Tortugas Keys Bird Reservation during the present nesting season. Gerrit P. Wilder, of Honolulu, Hawaii, has been reappointed deputy reservation protector of the Hawaiian Islands Bird Reservation. Mr. Wilder was absent from the reservation for a number of months on a scientific expedition to the South Seas under the auspices of the Bishop Museum, Honolulu.

Forestry Officials Visit Refuge.--On April 12 and 13 a party of about 20 persons, comprising members of the Lake States Forest Experiment Station, St. Paul, Minn., and their families visited the Upper Mississippi River Refuge. Escorted by Superintendent Steele, they toured the refuge area in the vicinities of Winona, Minn., and La Crosse, Wis.

Fire Hazard Continues.--The fire hazard on the Upper Mississippi Refuge continues to be serious and rangers are constantly on the alert for outbreaks. The following is quoted from a recent report by Ranger Lundberg regarding a fire that broke out on the important sanctuary opposite Wabasha, Minn.:

"On April 12 a blaze along the Wabasha-Nelson road was spotted from the lookout. A crew of men was lined up and we fought the blaze all afternoon and a smaller blaze after supper until about 10 p.m. It jumped the road in one place but we managed to check it in time to save the lower territory and also confine the burning on the upper area to about 200 acres. Everything burned as if gasoline had been poured on it."

Jail Sentences for Taking Game Fish.--A commercial fisherman of Houston County, Minn., was apprehended on April 29 by Ranger Homer F. Hall for taking game fish on the Upper Mississippi Refuge with the use of a net, and for possessing them. The accused, when arraigned in State Court, entered a plea of guilty and was sentenced to pay a fine of \$50 and costs, or in default thereof to serve 60 days in the county jail. This sentence was based on the charge of taking small-mouthed bass. In addition, for taking perch and crappies he was sentenced to serve 60 days at hard labor on the Houston County rock pile. Ranger Hall spent two entire nights in the marsh waiting to obtain the necessary evidence of the violation.

Higher Fine Imposed on Appeal.--A fur-farm operator, who in October, 1929, was arrested by Ranger Hall and Protector Shaver, in cooperation with the Wisconsin State game wardens, for taking muskrats alive illegally, and who was convicted and fined \$75, appealed his case to the circuit court. He contended that the muskrats were taken from his farm and presented photographs of muskrat houses located on it. Before the appeal was heard, however, Ranger Hall made a further investigation of the muskrat houses and found that they had been constructed by hand. Two or three of them were preserved for evidence at the new trial. When the case came up for rehearing on April 23, 1930, the defendant entered a plea of guilty and was fined \$100, with costs amounting to \$93. In addition, his fur-farm license was revoked.

Importations.--Reports from inspectors on the Mexican border indicate that 90,124 quail were brought in during the season that closed April 30. This is the largest number

ever entered in any one season since importations began. Of this number, 61,922 were entered at Laredo, Tex., 18,427 at Eagle Pass, and 9,775 at Brownsville. No quail disease was reported.

Permits were issued during the month for the importation of more than 2,800 eggs of game birds, mostly pheasant eggs from England.

Among the mammals imported was an elephant seal (Mirounga elephantina) from the South Atlantic, which arrived at New York on the S. S. St. Louis on May 10. This is the second specimen of this kind ever imported, the other having been brought in two years ago and placed on exhibition by one of the large circuses.

Treaty-Act Cases Terminated--Reports during April

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> | <u>Fine</u> |
|-----------------------------------|--------------|--------------|---|--|
| Barmeier | 1 | Illinois | Hunting ducks in close season | \$100 |
| Barmeier, Adams*, McKinney** | 1 | Missouri | Possessing a wood duck | \$10 |
| Barmeier, Adams*, Miller* | 1 | " | Killing a goose in close season | \$50 |
| Barmeier, Adams*, Miller* | 2 | Illinois | Killing and possessing ducks in close season | \$10 each |
| Charlton | 1 | Michigan | Killing and possessing swans | \$25 and costs |
| Merovka, Riddick, White** | 3 | Arkansas | Possessing wood ducks | \$25 each |
| Perry, Anderson**, Concannon** | 2 | Kansas | Killing ducks from a motor boat boat | \$25 each |
| Shaver | 1 | Minnesota | Possessing ducks in storage in close season. | \$10 |
| Smith, Wallace* | 1 | Maine | Killing a duck from a motor boat | Suspended jail sentence of 3 months and placed on pro- bation for 5 years |

*U. S. deputy game warden.

**Deputy State game warden.

Treaty-Act Cases Reported during April

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> |
|---------------------------------------|--------------|----------------|--|
| Barmeier, Adams*, Miller* | 2 | Missouri | Killing a goose in close season |
| Birsch | 1 | North Carolina | Transporting birds in excess of the weekly limit |
| Carlock*, Fidler* | 2 | Illinois | Hunting ducks in close season |
| Charlton, Hard* | 1 | Ohio | Killing and possessing ducks in close season |
| Kelsey, Padgett** | 1 | Florida | Killing snipe in close season |
| " " | 1 | " | Killing snipe and mourning doves in close season |
| Kelsey, Winne** | 1 | " | Hunting coots from a motor boat |
| " " | 2 | " | Driving and stirring up migratory waterfowl with a motor boat |
| Merovka | 1 | Mississippi | Killing and possessing yellowlegs |
| Perry, Lawhorn**, Nill**, Yowell** | 3 | Kansas | Possessing ducks in storage in close season |
| Roahen | 4 | Indiana | Possessing ducks in storage in close season |
| " | 2 | Iowa | Hunting ducks in close season |
| " | 2 | Missouri | Hunting ducks in close season |
| " | 1 | Illinois | Hunting ducks in close season |
| " | 3 | " | Hunting and possessing ducks in close season |
| Roahen, Carlock*, Fidler* | 1 | " | Hunting ducks in close season |
| Shaver, Cardoff** | 1 | Minnesota | Possessing ducks in storage in close season |
| Shaver, Vogel† | 1 | " | Hunting ducks after sunset; selling ducks |
| Spofford* | 2 | Massachusetts | Hunting ducks after sunset |
| Steele | 1 | Maryland | Selling ducks |
| Steele, Capps*, Tyler* | 1 | Virginia | Killing and possessing brant in close season |
| Whitehead, Daily* | 2 | Georgia | Killing wood ducks |
| Whitehead, Price** | 2 | " | Killing and possessing ducks in close season |
| Whitehead, Roundtree** | 1 | " | Hunting and possessing mourning doves in close season |
| Whitehead, Saye, Jr.* | 1 | " | Killing a robin |

* U. S. deputy game warden.

** Deputy State game warden.

THE SURVEY

ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE

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U. S. Department of Agriculture

Vol. 11

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No. 6

GENERAL NOTES

Chief Confers with New Walton League President.--In New York City recently Mr. Redington had the pleasure of a visit with Dr. George E. Vincent, newly elected president of the Izaak Walton League of America. Doctor Vincent was formerly president of the University of Minnesota and latterly president of the Rockefeller Foundation. He is one of the most distinguished citizens of this country, and not only will he give a fine leadership to the affairs of the Izaak Walton League but will bring to it a considerable personal knowledge of outdoor and wild-life problems. The League is to be congratulated on obtaining such a man for its president.

In June Mr. Redington spent several days in New England conferring with State fish and game commissioners.

To Serve on Park Committee.--Mr. Redington recently accepted an invitation to serve on the scientific advisory council of Royal Palm State Park, Florida. This 6,400-acre park, administered by the Florida Federation of Women's Clubs, is situated in Dade County, in the southern part of the State, and embraces the only tropical forest in the United States. It is also maintained as a refuge for wild life, especially deer, waterfowl, wild turkeys, and quail.

Associate Chief Inspects Fur Farm.--Mr. Henderson visited the U. S. Fur-Animal Experiment Station at Saratoga Springs, N. Y., June 15-17, to inspect operations being conducted there and to discuss with Dr. Karl B. Hanson, director of the station, plans for the work during the coming year.

Returns from Western Trip.--E. J. Cohnan, in charge of the Accounts Office, returned to Washington on June 14 from a tour through the Western States, where he conferred with the district leaders of rodent and predatory-animal control, game protectors, and other field representatives of the Bureau. W. E. Crouch accompanied him during the first part of the trip as far as Denver, Colo. Following a visit to the Survey's Rabbit Experiment Station at Fontana, Calif., Mr. Cohnan proceeded to Phoenix by airplane, making the 500-mile journey in less than 4 hours, and rejoined Mr. Crouch. This was the second time that an airplane had been used officially by members of the Survey in Arizona, the first being on April 21, when D. A. Gilchrist, leader of the Arizona district, went to Tucson by air to give an address and returned to Phoenix the same evening. Both Mr. Crouch and Mr. Cohnan had opportunity to inspect some of the mountain-lion and rodent infested areas of Arizona. At Safford, Ariz., they attended a meeting of the Colchise-Graham Cattle Growers' Association and the State Association of Secretaries of Chambers of Commerce, at which an address was given by Mr. Gilchrist. While this convention was in session, Hunter Albert L. Jones arrived in Safford with two small mountain-lion kittens and a six-months-old mountain lion. Proceeding with the three animals by airplane to Tucson, the Bureau's representatives spoke before the Tucson Game Protective Association. During the course of a banquet of the game association, the mountain lions were each given a bottle of milk; they disported themselves

before the assemblage to the entertainment of all present. Phoenix was again reached by the use of the airplane on April 26, and on the following day Mr. Crouch and Mr. Cohnan visited the prairie-dog infested areas in Grand Canyon, Ariz., under the guidance of Junior Biologist Ben E. Foster.

The Agricultural Appropriation Bill for the fiscal year 1931 became a law on May 27, 1930. A comparison of the appropriations provided for the Biological Survey for the fiscal year 1930 in the Agricultural and the Deficiency Appropriation Acts with those for the fiscal year 1931 in the Agricultural Appropriation Act is given below:

| Appropriation | 1930 | 1931 | Increase or decrease |
|--|-----------|-----------|----------------------|
| Salaries and Expenses: | | | |
| General Administrative Expenses..... | \$ 73,280 | \$ 77,520 | \$ 4,240 (1) |
| Maintenance of Mammal and Bird Reservations..... | 75,000 | 80,000 | 5,000 (2) |
| Highway, Sullys Hill National Park..... | 5,000 | ---- | -5,000 (3) |
| Food Habits of Birds and Animals..... | 633,273 | 680,000 | 46,727 (4) |
| Production of Fur-Bearing Animals..... | 51,200 | 59,000 | 7,800 (5) |
| Biological Investigations..... | 56,800 | 66,800 | 10,000 (6) |
| Protection of Migratory Birds..... | 173,013 | 192,000 | 18,987 (7) |
| Reindeer, Game, and Fur-Bearers in Alaska..... | 101,000 | 167,000 | 66,000 (8) |
| Total, Salaries and Expenses..... | 1,168,566 | 1,322,320 | 153,754 |
| Upper Mississippi River Wild Life Refuge..... | 190,600 | 197,000 | 6,400 (9) |
| Bear River Migratory Bird Refuge..... | 75,000 | 94,000 | 19,000 (10) |
| Migratory Bird Conservation, Refuges..... | 75,000 | 200,000 | 125,000 (11) |
| Migratory Bird Conservation, Commission..... | 5,000 | 5,000 | ---- |
| Total for Bureau..... | 1,514,166 | 1,818,320 | 304,154 |

- (1) For personnel and travel expenses.
- (2) For personnel and policing bird refuges.
- (3) Decrease--project completed.
- (4) \$29,897 for control of injurious rodents, \$10,430 for control of predatory animals, and \$6,400 for food habits research.
- (5) \$2,000 for Fur-Animal Experiment Station, Saratoga Springs, N. Y., \$3,100 for Rabbit Experiment Station, Fontana, Calif., and \$2,700 for investigations of fur animals.
- (6) For research in forest wild life.
- (7) \$14,320 for enforcement of the migratory bird treaty act and \$4,667 for biological investigations of migratory birds.
- (8) \$2,150 for reindeer industry in Alaska, \$40,000 for musk-ox investigations, and \$23,850 for the protection of game and land fur-bearing animals in Alaska.
- (9) For administration of refuge.
- (10) For administration of refuge.
- (11) For salaries and expenses in connection with acquisition of refuge land.

Official Publications.---The following official publications of the Bureau were issued in June:

- "Calculating Waterfowl Abundance on the Basis of Banding Returns," by Frederick C. Lincoln. Circular 118-C, 4 p., map. Received June 5.
- "English Sparrow Control," by E. R. Kalmbach. Leaflet 61-L, 8 p., illus. Received June 24.
- "Rat Control," by James Silver, Farmers' Bulletin 1533 (revised), 21 p., illus. Received June 26.
- "Fur Resources of the United States," by Frank G. Ashbrook, Ward T. Bower (Bureau of Fisheries), Thomas J. Biggins (Bureau of Foreign and Domestic Commerce), and Joseph W. Hixcox (Extension Service, U. S. Department of Agriculture); with Foreword by Arthur M. Hyde, Secretary of Agriculture, and Robert P. Lamont, Secretary of Commerce. A special report to supplement the exhibit of the United States Government at the International Fur-Trade Exposition (Internationale Pelzfach-Ausstellung), at Leipzig, Germany, 51 p., illus. Received June 11.
- "Die Pelzversorgung der Vereinigten Staaten." Same as above, translated into German by Miss Stephanie Herz. 55 p., illus.

As both the English and German editions of "Fur Resources of the United States" were issued primarily for use at the exposition this summer, very few copies were available for free distribution in this country. They may be purchased, however, from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 20 cents each.

Radio Talks for July.---The following Biological Survey talks have been scheduled in the radio programs for the month of July:

- "Where Shall We Fish?" by Paul G. Redington, in the local Izaak Walton League Chapter hour, Station WMAL, Washington, D. C., July 3.
- "Progress in the Wild Life Refuge Program," by Paul G. Redington, in the Farm and Home Hour Program of the Department and the National Broadcasting Company, 1:10 p.m., E.S.T., July 9.
- "The American Eagle" (Uncle Sam's Naturalists Series). Prepared by the Radio Service. July 4.

BIOLOGICAL INVESTIGATIONS

Returns from Field Tour.---Doctor Bell returned to Washington the first of June from a visit to points in the field. He addressed the Southern Forestry Congress at Memphis, Tenn., on the "Relation of Wild Life to Forestry Production"; the Tucson Game Protective Association, Tucson, Ariz., on "Needs for Research as a Basis for Game Administration"; and a joint meeting of the Iowa and Nebraska Ornithologists' Unions at Omaha, Nebr., on "Progress and Trends in Ornithological Work." He also represented the Survey at the meeting of the Southwestern Division of the American Association for the Advancement of Science, at Tucson, and at the installation ceremonies for Dr. Homer Leroy Shantz, as president of the University of Arizona; and participated in conferences at the university on forestry, range, and wild-life problems. This trip afforded opportunity for inspection of the work being done by Dr. Walter P. Taylor on the relation of rodents to forestry and range problems, by O. J. Murie on the elk in Jackson Hole region, and by O. L. Austin, Jr., who is engaged in work under the McSweeney-McNary Forestry Research Act, upon relations of wild life to forestry in the district of the Lake States Forest Experiment Station at University Farm, St. Paul, Minn. Many other conferences were held with other field representatives of the Biological Survey and of the Forest Service, the National Park Service, and the Carnegie Institution of Washington, and with State game departments and university officials, relative to further developments of research work upon wild life, with particular reference to lines of work upon which the Bureau is engaged or which it is planning to initiate.

Starts Field Work in Oklahoma.—Dr. H. H. T. Jackson left Washington early in June for Norman, Okla., to prosecute field work during the summer on the Salt Plains Bird Reservation in cooperation with the University of Oklahoma, which is conducting a biological survey of the area. A fire that occurred within a day or two after the party had established itself in the field, the result of spontaneous combustion, destroyed the cabin in which was stored the bulk of the collecting outfit, and this, with considerable private property, was a total loss. Fortunately, it was possible to replace sufficient equipment to allow the party to continue the work.

Bands 10,000th Purple Finch.—On May 10, 1930, M. J. Magee, of Sault Ste. Marie, Mich., one of the Bureau's bird-banding cooperators, banded his 10,000th purple finch. Many of his purple finches have returned year after year to give him additional notes on the development of their plumage. One of these, bearing band No. 103609, banded July 28, 1922, was recaptured on April 27, 1923; May 2, 1924; April 20, 1925; May 8, 1926; May 14, 1928; April 18, 1929; and May 15, 1930. As this bird was at least 2 years old when first taken (as indicated by its plumage), it is now at least 10 years old. Mr. Magee's total banding record since 1921 is 14,294 birds of 75 species. Included in this total are 23 species of warblers.

Studies Relation of Wild Life to Forests.—A. H. Howell spent the month of June in western North Carolina collaborating with Thos. D. Burleigh in his studies, under the McSweeney-McNary Forestry Research Act, of the relation of wild life to the forest.

Leaves for Summer Field Work.—Vernon Bailey left Washington on June 14 for the summer months to take up research work in Minnesota, Wisconsin, Iowa, and Illinois. A considerable part of his time will be spent at the Upper Mississippi River Wild Life and Fish Refuge.

Sympathy is extended to Mrs. Bessie W. Palm, stenographer in this Division, in the death of her mother, which occurred recently.

Good Work in Baseball!—Allen J. Duvall, who has been clerk in the Division for about a year, is catching for the Department of Agriculture baseball team and has maintained a batting average of 0.406 for the first half of the schedule in the Departmental League.

Spends Three Months at Military School.—John G. May, clerk in the bird-banding office, has returned to duty after a three months' absence at the United States Engineers' School at Fort Humphrey, Va. He holds the rank of first lieutenant in the officers' Reserve, Corps of Engineers, U. S. Army.

FOOD HABITS RESEARCH

Visit Game Bird Farm.—Mr. McAtee and Herbert L. Stoddard recently visited, independently, a game farm south of Richmond, Va., where an incubator and brooder system of rearing quail is being developed. The farm is equipped to produce and handle 10,000 eggs this year. This will be a good test of the practicability of the system. There seems to be no doubt about producing in this way large numbers of young bobwhites practically free from diseases and parasites, but scarcely anything is known yet about the chances of survival of these birds when liberated.

Bird Mortality Due to Poison.—E. R. Kalmbach during the month investigated a report of bird mortality in the District of Columbia and found it was due to poisoning operations

on the part of persons unknown. He also investigated damage by English sparrows to a wheat plot on the Arlington Experiment Farm of the Department near Rosslyn, Va. As the period to elapse before harvesting the grain was short, emergency control by shooting was recommended rather than an extended campaign.

Report of Cooperative Quail Investigation Nears Completion.--The manuscript of the final report of the Cooperative Quail Investigation has now been edited and copied. A meeting of the Quail Fund Committee, which financed the investigation, was held about the middle of the month, when Herbert L. Stoddard turned over the completed manuscript to the committee for publication.

FUR RESOURCES

Delegation Arrives in Germany.--A letter from Mr. Ashbrook written at Leipzig, Germany, on June 2, inclosed a photograph of the United States representatives attending the International Fur-Trade Exposition, taken on the S. S. America enroute from New York to Hamburg. The following excerpts from the letter tell of some of their activities since arriving in Germany:

"We have all been hard at it since we landed in Leipzig; 4,400 feet of space is some place to fill. We had over 100 boxes of things for the exhibit. There are still many supplies which put on the finishing touches that have not yet arrived. I do not expect the whole thing to be set up before the end of the week. We had the grand opening on Saturday--a formal reception, luncheon, supper in the city hall. Sunday evening the French delegation gave a dinner here in the hotel, and Mr. Morrison and I attended. I also attended a luncheon today given by the French Hunting delegation."

Returns from Field Trip.--Dr. J. E. Shillinger spent two weeks during the month on a field trip, making stops at the Upper Mississippi River Wild Life Refuge; the University of Minnesota at Minneapolis; Marinette, Wis.; the University of Michigan at Ann Arbor; and at other points in Michigan. Investigations were made of muskrat farming under a variety of conditions. At the University of Minnesota the cooperative project on diseases of fur animals is progressing in spite of a number of difficulties, and plans are being made for an active continuation of the work. A visit was made to the new fox-farming project at Hermansville, Mich., and to a slaughterhouse for killing and dressing rabbits at Dundee, Mich., which has a handling capacity of 30,000 to 50,000 pounds of rabbit meat a month. A veterinarian in the Bureau of Agricultural Economics is regularly stationed at the plant to inspect all the meat sold there.

Notes from the Fur-Animal Experiment Station.--Dr. Karl B. Hanson reports that the 51 fox pups at the Fur-Animal Experiment Station, Saratoga Springs, N. Y., are healthy and thriving. All were recently weaned. Two of the twelve litters are cross foxes, and the others are reds, silvers, and blacks. The 4 martens born this spring are active and healthy. One of them is gray, being similar to the one born last year; the other three are dark brown.

PREDATORY-ANIMAL AND RODENT CONTROL

Cooperative Agreement with Indian Service.--Copies of a cooperative agreement between the Bureau of Indian Affairs of the Department of the Interior and the Biological Survey were recently mailed to all field leaders. This agreement defines the policy to be followed in cooperative control of rodents and predatory animals on Indian lands.

Conference of Predatory-Animal Control Leaders Held.--During the period from June 9 to 14 a conference of predatory-animal control leaders was held in Washington, the following being in attendance: L. J. Goldman, of the Idaho district; Dr. Glen R. Bach, Washington district; R. E. Bateman, Montana district; G. E. Holman, Utah district; O. L. Coleman, Minnesota-Wisconsin district; H. P. Williams, Michigan district; and Clyde F. Briggs, assistant leader in the Oklahoma-Arkansas district. A program similar to that followed when the other groups of leaders visited Washington was carried out. A resolution was passed by the leaders present expressing their appreciation to members of the Washington force for courtesies, hospitality, and cooperation extended in making their visit pleasant and profitable. This conference completes the plans made at the Ogden meeting in April, 1928, for since that time all the field leaders of the Division have been called to Washington for conferences.

Bateman Renews Acquaintance with Vice-President Curtis.--Following the close of the predatory-animal conference, R. E. Bateman, predatory-animal-control leader in the Montana district, visited the Capitol, where he had opportunity to renew his acquaintance with Vice-President Curtis. Mr. Bateman spent several years of his youth in the country around Topeka, Kans., from where Mr. Curtis comes, his father and mother in the earlier days being well acquainted with the Curtis family. Mr. Curtis, after talking over old times, presented Mr. Bateman with an autographed card with the suggestion that he take it to his mother with Mr. Curtis's best wishes.

Resignation and Appointment.--R. B. Hickerson resigned on May 31 as agent in the Texas district. He will still be employed by the State on cooperative rodent-control work. S. C. Rogers was appointed senior biological aide in the New Mexico district effective June 4.

Stewart Returns from Alaska.--R. K. Stewart, former leader of predatory-animal control in Alaska, returned to the United States during the latter part of May after three years of successful work in the Territory, where he was detailed by the Bureau at the request of the Governor. Predatory-animal problems in Alaska are considerably different from those in the Western States, and their solution is a much slower process than is the case in most of the infested areas of the far West. Harlan H. Gubser, who was detailed to Alaska last September, will be the Bureau's representative in the Territory in predatory-animal control and will carry on the work there. Effective July 1, it is anticipated that Mr. Stewart will report for duty in the Wyoming district, following a much-needed vacation at his home in California.

How Are We Going to Collect Damages?--A report from the Wyoming newsletter reads as follows: "In our coyote trapping operations, we make use of a fetid scent (in fact, very fetid). The body of this scent is fish oil, obtained by allowing fish to decay in barrels. Naturally the odor is not the sweetest in the world. Recently a barrel of suckers in the process of decaying to the proper degree of rottenness was shipped to Cheyenne from the field. On its arrival the freight office made the following notation on the bill of lading: 'Spoiled--Unfit for Human Consumption.'"

LAND ACQUISITION

Conservation Commission Approves Purchase of Land.--The Migratory Bird Conservation Commission, at its meeting on May 26, approved the purchase of 37,735 acres of land at an average cost of \$1.13 an acre. Two areas are embraced in this initial program. One containing approximately 32,555 acres in the Cape Romain region on the coast of South Carolina was taken under lease with option to buy at any time within the next four years. Thus, the Survey will be able to administer the refuge beginning July 1 and can continue to do so until title examination has been completed and actual conveyance made. The land embraced by it is in a solid body; that is, there are no other owners within the exterior limits; consequently, this one transaction establishes a first-class administrative unit. The other area, containing 5,180 acres in a solid body, covers the San Luis Lake region in south-central Colorado. It is one of the most valuable concentration points of birds in the Southwest, and one of the most desirably situated, all factors considered, in the State of Colorado.

Cheyenne Bottoms Bill Passed.--On June 12 the President approved the act authorizing an appropriation of \$250,000 for the acquisition of Cheyenne Bottoms, Kansas, as an inviolate migratory-bird refuge. The area has already been examined and typed, and was found to contain approximately 20,000 acres, which is the area approved for acquisition by the act. Plans are being made by the Survey to institute the necessary proceedings immediately after July 1 for the acquisition of the lands, if the necessary funds are made available in the second deficiency bill.

States Pass Enabling Acts.--Mississippi and Virginia have recently passed enabling acts authorizing the acquisition of lands under the Migratory Bird Conservation Act. This reduces to 17 the number of States in which such consent is still needed.

Progress of Appraisal Parties.--D. H. Janzen's party has completed work in Delaware and is now engaged in the examination of areas in New Jersey. C. H. Bennett's party is working in Kentucky after having completed examination of proposed units in Tennessee. A. J. Rissman's party is continuing work in Nebraska.

Inspects Field Work.--Robert M. Rutherford is on field inspection work in Tennessee, Kentucky, and Nebraska.

GAME AND BIRD CONSERVATION

Attends North Dakota Walton League Convention.--Talbot Denmead attended the annual convention of the North Dakota Division of the Izaak Walton League of America in Bismarck on June 10 and 11, and gave an address on "Migratory Birds." He also spoke before the Rotary and the Kiwanis Clubs at their weekly luncheons, and talked to about 80 boy scouts on game-law enforcement. An interesting sportsmen's show was held in conjunction with the convention. Mr. Denmead stopped at St. Paul, Minn., and conferred with State game officials and with U. S. Game Protector B. J. Shaver.

Boys Carry Injured Duck to Protector.--As an example of the interest taken in wild-life protection in his community, Game Protector B. R. Britton of Socorro, N. Mex., reports that on Sunday, May 18, two young men about 17 years of age brought to him a ruddy duck, which they stated they had found on the highway unable to fly. They had gone out of their way about 7 miles in order to take the bird to the Federal game protector.

Exhibit at Sportsmen's Show a Success.--The exhibit of this Division at the Sportsmen's Show in St. Louis, Mo., from May 12 to 18, inclusive, was a success, according to Game Protector Harry Barmeier, who was in charge of the work, and Protector L. J. Merovka, who assisted him. The show was well attended and the public appeared much interested in the display.

Changes in Open Seasons on Migratory Birds.--By an amendment to the regulations under the migratory bird treaty act approved by the President on May 23, 1930, the period October 1 to January 15 was prescribed as a uniform State-wide open season for hunting migratory waterfowl in the State of Washington in place of the seasons previously existing on either side of the summit of the Cascade Mountains. In the north Texas zone the period September 1 to October 31 was established as the open season on mourning doves, the season in the south zone remaining as before, October 1 to November 30. A close season was established on mourning doves in Colorado, Indiana, and Ohio, in conformity with the State laws on this species in these States.

Birds Plentiful at Belle Fourche.--Deputy Reservation Protector Fred C. Winkler reports that birds have been unusually numerous on the Belle Fourche Reservation, South Dakota, this season.

Elk Refuge Notes.--Protector A. P. Nelson reports that on May 28 a 2-year-old cow moose came onto the highway, about 9 miles north of the refuge, after dark, where it was struck by an automobile and crippled so severely that the local game warden had to kill it.

Take Motion Pictures of Big-Game Animals.--Motion pictures of big-game animals on the Bison Range, Mont., were taken on May 19 and 23 by C. A. Lindstrom and Eugene Tucker, of the Office of Motion Pictures of the Department. They visited Sullys Hill Game Preserve, N. Dak., on May 26 and took pictures of the antelope, deer, and birds.

Antelope Seen at Lake Malheur.--Protector George M. Benson reports that on April 25 at Lake Malheur, Oreg., he saw an antelope feeding with cattle and horses on the dry lake bed.

Birds at Chase Lake.--Protector Wesley D. Parker visited Chase Lake Bird Reservation, N. Dak., on May 30 in order to inspect conditions and to replace the old signs, and saw a large number of pelicans and some cormorants and ducks nesting there. Deputy Reservation Protector Hugh Marston reports that the water level at this refuge this spring was the highest that it has been in a number of years. Six white cranes appeared at the refuge on April 22, the first of this species seen by Mr. Marston in the locality in many years. He states that they were with a flock of 40 or more sandhill cranes, yet kept apart from them.

Birds at Big Lake.--Protector Steven B. Crossley, of Big Lake Reservation, Ark., reports a large number of wood ducks feeding and raising broods on Big Lake this season. He states also that 600 to 800 egrets and numerous herons are feeding on the refuge, and that they present a beautiful picture, resting on trees on a line of small islands in the main lake.

Senate Committee to Visit Upper Mississippi Refuge.--The Senate Committee on Wild Life Resources, consisting of Senators Walcott of Connecticut, Hawes of Missouri, Norbeck of South Dakota, Pittman of Nevada, and McNary of Oregon, with Carl D. Shoemaker, formerly Fish and Game Commissioner of Oregon, as special investigator for the committee, plans to visit the Upper Mississippi Refuge during the middle of July. It is probable that an inspection trip by boat will be made through the entire length of the refuge.

Muskrat Trappers Prosecuted.--For trapping muskrats without a license and for unlawfully possessing muskrat pelts, a resident of Grant County, Wis., apprehended by Ranger Lawrence and Protector Shaver on March 16 on the Upper Mississippi Refuge was, upon conviction in State court, fined \$100 and costs of \$34.50. A resident of Wabasha County, Minn., was arraigned in State court on May 31 charged with trapping muskrats during the close season, and upon plea of guilty was fined \$50 and costs of \$6. Ranger Lundberg obtained the evidence in this case.

Commercial Fishermen Fined.--Two commercial fishermen, who were apprehended on May 8 for illegal seining on the Upper Mississippi Refuge at a point near Buffalo City, Wis., upon entering pleas of guilty in State court were each fined \$100 and costs of \$9. In addition, one 600-foot seine was confiscated and the commercial fishing licenses of the defendants were revoked. Ranger Hall, cooperating with Minnesota and Wisconsin game wardens, obtained the evidence in these cases.

Importations.--Among the rarer birds imported during the month were two tri-colored parrot finches (Chloromunia trichroa) from Japan, and two Forsten's lorries (Trichoglossus forsteni) from Australia. A gorilla from West Africa was received at Philadelphia on June 2. This makes the fifth live specimen now in the United States. Permits were issued during the month for the importation of approximately 3,000 eggs of game birds.

Doctor Bryant Elevated to Park Service Post.--Dr. Harold C. Bryant, for the past 17 years a Biological Survey inspector of foreign birds and mammals at the port of San Francisco, has been appointed, effective July 1, as assistant director of the National Park Service in charge of education and research, with headquarters at Washington, D. C. Since 1914, Doctor Bryant has been connected with the California Division of Fish and Game. Prior to that time he was engaged in educational work at Pomona College and the University of California. He has gained wide reputation both as an economic ornithologist and as a game expert. In his fish and game work in California he started, in cooperation with the National Park Service, the nature-guide work in the Yosemite Park, Calif., and also the Yosemite Field School of Natural History. He edited, from the time of its foundation, the quarterly California Fish and Game, is author of "Outdoor Heritage" and many bulletins issued by the Fish and Game Commission, and is part author of "The Game Birds of California." His new work will be concerned with the various lines of educational work carried on by the National Park Service.

Treaty-Act Cases Terminated--Reports Received during May

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> | <u>Fine</u> |
|--------------------------------|--------------|----------------|---|---|
| Barmeier, Adams*, Miller* | 1 | Missouri | Hunting and killing a goose in close season | \$50, in default of which was com- mitted to jail |
| Charlton, Davis*, Crozier** | 2 | Ohio | Killing and possessing ducks in close season | \$100 and costs each |
| Jans* | 2 | Illinois | Possessing wood ducks | \$15 and costs of \$35 each |
| " | 1 | " | Hunting and possessing a wood duck | \$15 and costs of \$35 |
| " | 1 | " | Killing and possessing robins, woodpeckers, and flicker | \$50 and costs of \$10.50 |
| Merovka, Adams* | 1 | Missouri | Hunting and killing ducks in close season | \$50, in default of which served 30 days in jail |
| Ransom | 1 | Idaho | Possessing a wood duck | \$10 |
| " | 2 | " | Killing and possessing a wood duck | \$10 each |
| Roahen | 1 | Illinois | Possessing a wood duck | \$15 and costs of \$35 |
| " | 1 | " | Hunting ducks in close season | 30 days in jail |
| Roahen, Byam** | 2 | " | Hunting ducks in close season | \$15 and costs of \$35 each |
| Shaver, Vogel* | 1 | Minnesota | Offering for sale and selling ducks and coots | \$25 |
| Steele, Tyler* | 1 | Maryland | Possessing ducks in close season | \$25 and costs of \$20.45 |
| Whitehead | 1 | Georgia | Possessing mourning doves in close season | \$1 |
| Whitehead, Hutson* | 1 | South Carolina | Hunting, killing, and pos- sessing a duck in close season | \$20 |
| Whitehead, Saye* | 1 | Georgia | Killing and possessing a robin | \$5 |

Bird Reservation Trespass Cases Terminated during May

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> | <u>Fine</u> |
|--------------------|--------------|----------------|---|---------------------------------------|
| Whitehead, Carter* | 1 | South Carolina | Hunting and killing ducks on Savannah River Bird Refuge | Sentenced to serve 90 days in jail |

* U. S. deputy game warden.

** Deputy State game warden.

Treaty-Act Cases Reported during May

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> |
|---|--------------|--------------|---|
| Barmeier, Adams*, Miller* | 1 | Illinois | Killing and possessing ducks in close season |
| " " | 2 | " | Hunting ducks in close season |
| Barmeier, Miller* | 1 | " | Possessing ducks in cold storage in close season |
| Charlton, Davis*, Crozier** | 2 | Ohio | Killing and possessing ducks in close season |
| Clarkson, Johnson | 1 | Louisiana | Selling and serving duck as part of a meal |
| Johnson | 2 | " | Hunting, pursuing, and killing geese from an airplane |
| Merovka, Riddick | 1 | Arkansas | Selling and serving duck as part of a meal |
| Merovka, Riddick, Dickinson**, Noles** | 4 | Texas | Killing and possessing ducks in excess of daily bag limit |
| Perry, Concannon* | 2 | Kansas | Hunting and pursuing waterfowl from an airplane |
| Roahen | 1 | Illinois | Hunting ducks in close season |
| " | 1 | " | Killing and possessing a duck in close season |
| Roahen, Jakoubek** | 1 | Wisconsin | Offering for sale and selling ducks |
| Shaver, Bailey* | 1 | Minnesota | Selling ducks; hunting ducks after sunset |
| Shaver, Cardoff* | 3 | " | Possessing ducks in storage in close season |
| Shaver, Lawrence* | 1 | Wisconsin | Hunting and possessing ducks in close season |
| Steele*, Peterson** | 2 | Missouri | Killing and possessing ducks in close season |
| Whitehead | 3 | Georgia | Killing and possessing mourning doves in close season |

Bird Reservation Trespass Cases Reported during May

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> |
|----------------------|--------------|--------------|--|
| Leichhardt, Hubbard* | 4 | Washington | Hunting and possessing ducks on Dungeness Spit Bird Refuge |

* U. S. deputy game warden.

** Deputy State game warden.



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ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE
CREDIT FOR MATTER REPRINTED FROM THESE PAGES SHOULD BE GIVEN TO THE BIOLOGICAL
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Vol. 11

Washington, D. C., July 31, 1930

No. 7

HENRY W. HENSHAW, Former Chief, Dies---Just before going to press word was received of the death on August 1, 1930, of Henry Wetherbee Henshaw, Chief of the Biological Survey from 1910 to 1916. Further details will be given next month.

GENERAL NOTES

Brookhart Act Provides Salary Adjustments to a Large Number of Bureau Employees. -- Through the enactment into law on July 3, 1930, of Senate Bill 215, generally known as the Brookhart Salary Adjustment Act, those employees in Washington and in the field service who were on the rolls on July 1, 1928, and who, because of the ruling of the Comptroller General on the interpretation of the Welch Act, were advanced only one step within their grades at that time are now entitled to an additional step. The ruling of the Comptroller General makes the Brookhart Act applicable to all employees who were advanced only one step on July 1, 1928, in the words of the Comptroller General "notwithstanding any change in status by promotion, demotion, allocation, reallocation, transfer, reinstatement, or otherwise--either within the same grade or from one grade to another within the grades specified--which occurred in the interval between June 30, 1928, and July 3, 1930, provided, only, that the grades held June 30, 1928, and the grades held on July 3, 1930, are both within those mentioned in the act." Those entitled to the increase will now be advanced one step in their grade. It is a source of gratification to officials of the Bureau that an injustice resulting from the interpretation of the Welch Act has now been recognized by Congress and in a way corrected. Salaries of in-Washington and field employees will be adjusted in accordance with the Brookhart Act in the salary payments for July. The increase is effective from July 3, 1930. About 100 Bureau employees will benefit by the act.

Inspects Upper Mississippi Refuge.---Mr. Redington left Washington on July 10 to visit various points on the Upper Mississippi River Wild Life and Fish Refuge in connection with an inspection of that reservation being made by the Senate Committee on Wild Life Resources.

Represents Chief at Mississippi Conservationists' Convention.---In lieu of Mr. Redington, who was unable to attend, Roy Moore, leader of rodent control for Mississippi, Alabama, and Louisiana, represented the Biological Survey at the third annual convention of the Mississippi Association for the Conservation of Wild Life held at Jackson, Miss., on July 11, and presented an address on "Federal Interest in Wild Life Conservation."

Official Publications.---The following official publications of the Bureau were issued during the month:

"Rabbit-House Construction," prepared by the Bureau of Biological Survey and the Bureau of Public Roads. Leaflet 15 (revised), 8 p., illus. Received July 7.

"Open Seasons for Game, 1930-31," compiled by Frank L. Earnshaw and Frank G. Grimes. Poster No. 49 (Bi). Received July 9.

"Rabbit Recipes," prepared through cooperation of the Division of Fur Resources of the Biological Survey, with the Bureau of Home Economics. Leaflet 66, 8 p., illus. Received July 23.

Hints on Coyote and Wolf Trapping," by Stanley P. Young. Leaflet 59, 8 p., illus. Received July 31."

Radio Talks for August.--The following Biological Survey talk has been scheduled in the Department's radio program for the month of August:

"Mourning Doves" (Uncle Sam's Naturalists Series), August 1.

"You Can Control Rats" (Farm and Home Hour), August 13, 1:04 p. m., EST, by James Silver, leader Eastern Rodent Control District, National Broadcasting Chain.

BIOLOGICAL INVESTIGATIONS

Howell and Burleigh Study Wild Life in North Carolina Forests.--In their field investigations in the North Carolina mountains during June, A. H. Howell and T. D. Burleigh established camps at four different stations--on Mount Mitchell at 6,500 feet altitude; Indian Gap, in the Great Smoky Mountains, at 5,200 feet; Grandfather Mountain, at 4,600 feet; and near Highlands, at 4,000 feet. Collections were made of mammals and birds for technical studies, and the stomachs of all specimens taken were saved for later investigation of their food habits. Much new information on the distribution of the Canadian Zone species of birds and mammals inhabiting these high mountains was obtained, and an opportunity was afforded to examine some of the finest stands of spruce, fir, and hemlock in the Eastern United States. During the summer and fall, Mr. Burleigh plans to devote special attention to the habits of rodents in the forests. He has sent in a fine series of specimens of birds and mammals collected during the course of his investigations.

Bailey Having Successful Summer's Work.--Vernon Bailey, who is spending the summer engaged in a study of the wild life of the Upper Mississippi Wild Life Refuge, reports a most interesting start of the season's work. He has been called upon to give several addresses on the wild-life attractions and possibilities of the region.

Returns from Oklahoma.--Dr. H. H. T. Jackson has returned from Oklahoma, where he has been engaged for about two months assisting officials of the University of Oklahoma in organizing and launching a detailed survey of the wild life of that State and in demonstrating methods of investigation in mammalian ecology. Despite a fire that destroyed most of the equipment of the party during the first days of the expedition, they succeeded in getting the work well under way. Special study was made of the Great Salt Plains in Alfalfa County, a part of which is included as a wild-life reservation under the administration of the Survey. Investigations were also conducted in the Glass Mountains, in the drifting sand dunes near Waynoka, and along the Cimarron River.

On Military Duty.--Frederick C. Lincoln, who holds a commission as captain in the Signal Corps (Reserves) of the U. S. Army, was on military detail at the Reserve Officers' Camp at Fort George G. Meade, Md., for a period of two weeks during the month.

Taylor Makes Studies at Flagstaff, Ariz.--Dr. Walter P. Taylor has been working recently in the vicinity of Flagstaff, Ariz., checking up on the relation of rodents and other wild life to the forest and grazing investigations in progress there in cooperation with the Forest Service.

Eight Fawns Killed by Coyotes at Reindeer Station.--L. J. Palmer, in charge of the Reindeer Experiment Station at College, Alaska, reports the loss of eight reindeer fawns as a result of an unexpected invasion of the Experiment Station pasture by coyotes.

Reports on Reindeer-Caribou Experiments.--W. B. Miller, in charge of the reindeer substation at Nome, Alaska, has recently submitted a carefully worked out report based on his study last summer of the results of the reindeer-caribou crossbreeding experiment that is in progress on Nunivak Island in cooperation with the Nunivak Development Company, a subsidiary of the Lomen Reindeer Corporation.

Establishes Plots for Rodent Study.--Oliver L. Austin, Jr., reports a most interesting season's work largely on the Chippewa National Forest near Cass Lake, Minn., where he has established several experimental plots in cooperation with the Forest Service to determine the relation of various rodents to forestry replanting and reproduction. He has also obtained interesting results in his study of birds during their migration and breeding seasons.

Continues Study of Jackson Hole Elk.--O. J. Murie is busily engaged on his study of the elk in the Jackson Hole region, Wyo. In connection with field studies on the summer pasturage and fawning grounds he has obtained interesting still and motion pictures illustrating important features of the life history and relationships of the elk.

Vacations.--E. A. Preble with his family is enjoying a vacation season in his old home country near Ossipee, N. H. E. R. Scholl and wife are spending a short vacation period with relatives at Reading, Pa.

FOOD HABITS RESEARCH

Gives Radio Talk.--Mr. McAtee gave a radio talk on "Control of the Natural Enemies of Game" over Station WJSV, Mount Vernon Hills, Va., on the evening of July 22 under the auspices of the Virginia Commission of Game and Inland Fisheries.

Migratory Game Bird Refuge Surveys Summarized.--Since the summary of last season's field work in the December, 1929, issue of THE SURVEY, 35 additional areas in the Southeastern States have been investigated, totaling over 2,226,000 acres, including all inspections up to the end of the fiscal year. Of this group 6 were highly recommended as prospective refuges, 17 less highly recommended, and 12 not recommended. The total number of projects (not lakes or other bodies of water, which are more numerous) inspected during the year and in the last month of the previous fiscal year is 189, comprising more than 3,700,000 acres. Thirty-three were highly recommended, 56 less highly, and 100 not recommended. Inspections were made in every State in the Union.

Resumes Duck-Disease Studies.--E. R. Kalmbach has gone to the Pacific Coast to resume his studies of the duck disease, particularly in the Klamath Lake region. Before settling down to the summer's work, he had conferences with S. E. Piper and Theo. H. Scheffer relating to the economic investigations they are carrying on.

Investigations at Keokuk Lake, Iowa.--F. M. Uhler has been working on Keokuk Lake, a large body of backwater created by a dam in the Mississippi River near Fort Madison, Iowa. This study is being made to learn the effect of dams, primarily on the vegetation and secondarily on the wild life of this region, so that a better idea may be had of the effect of the numerous dams that are proposed to be installed in an effort to stabilize water levels in the Upper Mississippi, including the section occupied by the Upper Mississippi River Wild Life and Fish Refuge.

Botanical Surveys.--A. C. Martin was engaged early in the month on botanical surveys of areas suggested for refuge sites in western New York. Neil Hotchkiss is working in Minnesota, where he will make a general reconnaissance of marsh and lake areas with regard to their suitability for Federal migratory-bird refuges. Opportunity will be taken also of becoming acquainted with the types of such areas in the State so that he will be in position to take the great accumulation of data the Bureau has on Minnesota lakes and assemble it for a final report on the food resources for wild fowl of Minnesota. Mr. Hotchkiss is being assisted by Percy Jones, temporary junior biologist, whose botanical training was had at the Gray Herbarium, Cambridge, Mass.

Continue Game-Bird Studies.--Herbert L. Stoddard and Wallace B. Grange are in the mid-West engaged upon work connected with game-bird studies in cooperation with the Universities of Michigan, Wisconsin, and Minnesota.

Survey Potomac Conditions Near Washington, D. C.--F. M. Uhler and Clarence Cottam briefly investigated food conditions for wild fowl on the Potomac River below Washington. Conditions were found excellent, and any shortage of wild duck food is due not to deficiency in growth, which occupies all available areas, but to an excessive number of birds.

Appointments.--Robert B. Burrows, of Atlanta, Ga., has been appointed temporarily to incorporate material in reference collections of the division, and W. S. Greene, of Binghampton, N. Y., to index records of the bearing season of fruits attractive to birds.

On Vacation in Newfoundland.--Miss Phoebe Knappen, junior biologist, is spending a month's vacation period in Newfoundland.

FUR RESOURCES

Ashbrook Reports on Fur-Trade Exposition.--In recent communications Mr. Ashbrook has described conditions at the International Fur-Trade Exposition at Leipzig, Germany. The exposition was opened with impressive ceremonies, followed by a series of special events arranged by the representatives of the individual countries. The 4,400 square feet of space allotted to the United States is filled with exhibit material that makes a very creditable showing for this country. Many complimentary comments have been made on the completeness of the exhibit, which is reported to be one of the finest in the hall. Mr. Ashbrook has been designated by the State Department as commissioner general to represent the United States at official events at the exposition.

The motion pictures depicting various phases of the fur industry in this country are being shown daily in the motion-picture theater on the exposition grounds. A copy of each of these pictures has been sent to London for showing there to the furriers and fur farmers. The literature for distribution is also in much demand by those attending the exhibition, especially the booklet prepared for the occasion giving a general survey of the fur industry in the United States. Mr. Ashbrook is spending some time this month in Denmark, Norway, and Sweden studying fur-farming conditions there, and may also visit some of the other European countries.

Attends Fox Breeders' Summer School.--Dr. Karl B. Hanson attended the summer school meeting of the American Fox Breeders' Association, at Lincoln, Me., July 1 and 2. He discussed the results obtained in crossbreeding experiments with foxes at the Fur-Animal Experiment Station and gave a demonstration of various methods of dosing and treating foxes for parasites. The motion picture "How to Handle Foxes" also was shown at the meeting.

Diagnoses Diseases on Fox Ranches.--En route to Saratoga Springs, Doctor Hanson stopped at several ranches in Maine and Massachusetts, on two of which considerable trouble was being had with pups suddenly going lame or losing control of their legs. Examination of the affected animals revealed that they had rickets. On another ranch visited several fox pups had died from contagious disease. A field study indicated that infectious encephalitis and some other disease, possibly paratyphoid, were apparently responsible for the losses.

Doctor Loftus Succeeds Doctor Graves in Alaska.--Dr. Jule B. Loftus, formerly connected with the State Agricultural College, at Fort Collins, Colo., was appointed, effective July 1, by the Governor of Alaska as Territorial veterinarian, with headquarters at Juneau. He succeeds Dr. Earl Graves, who resigned on June 30, and will collaborate with the Biological Survey in cooperative investigations in fur farming and control of fur-animal diseases. Doctor Loftus visited the Fur-Animal Experiment Station, at Saratoga Springs, N. Y., from July 3 to 15, prior to taking up his duties in Alaska.

PREDATORY-ANIMAL AND RODENT CONTROL

Crouch Returns from West.--W. E. Crouch returned to Washington on July 2 after completing a successful tour through the majority of the Western States, where opportunity was afforded him to confer with leaders, assistants, and many individual cooperators of the Bureau.

Day Transferred to Washington; Hamm Becomes New Leader in Wyoming.--Albert M. Day, leader of predatory-animal and rodent control in the Wyoming district, was transferred to Washington, effective July 1, to fill a new position in this division made possible by a slightly increased appropriation for 1931. He will be succeeded in Wyoming by Adolph S. Hamm. For some time the need for additional help in the division has been felt, in view of the extension of control operations throughout the country, which in turn has brought about increased work in the administration of and closer contact with field projects.

Mr. Day entered the service of the Biological Survey under a six-months' appointment as field assistant on April 1, 1919, and was assigned to rodent-control work in Wyoming. Following this he entered college and later took the civil-service examination. As a result, on March 16, 1920, he received a permanent appointment as Biological Assistant. On July 1, 1920, he was put in charge of the rodent control work in Wyoming. Between August 28, 1920, and March 7, 1921, Mr. Day was on part-time employment with the Bureau, during which time he continued his studies at the University of Wyoming and received his degree. He resumed full-time duties on March 16, 1921, and led the rodent-control project in a satisfactory manner during the following years. On July 1, 1928, he was placed in charge of both the predatory-animal and the rodent control work in Wyoming, and led these two projects up to the close of the past fiscal year. Before this later promotion, Mr. Day had advanced from the position of temporary field assistant, through biological assistant, junior biologist, and assistant biologist to associate biologist. He has succeeded in extending constructive cooperative work in Wyoming in a most satisfactory manner, and he comes to Washington with a full understanding of field conditions because of his long experience in the western country.

Mr. Hamm, who will succeed Mr. Day in the Wyoming district, entered the service of the Bureau as a field assistant on August 10, 1925, on a special assignment to a campaign for the control of ground squirrels and has continued in the employ of the Bureau from

that time to the present, with the exception of short furloughs to enable him to complete his course at the University of Wyoming, where he took his degree in 1929. Much of the extension of cooperative work in Wyoming during the past two years has been made possible as a result of Mr. Hamm's loyalty and consistent support of Mr. Day's leadership. Because of the close contact he has had with both the rodent and predatory animal projects in that State, he is well qualified to lead the combined operations there.

Addresses Colorado Stock Growers' and Feeders' Association.--L. L. Laythe, leader of predatory-animal and rodent control in Colorado, was on the program of a mid-summer meeting of the Colorado Stock Growers' and Feeders' Association, held at Pueblo on June 27. He addressed the members on predatory-animal and rodent-control operations in Colorado.

Reformatory Boys Aid Rodent-Control Work in Colorado.--Mr. Laythe reports that on May 2 eight boys and one guard started operations under Foreman T. A. Frame in the Chaffee County pest district near Granite. The boys were obtained from the State Reformatory, and there will be no cost to the project for their services, except for their board.

Coyote Tries to Outwit Hunter.--Clever Mrs. Coyote recently tried matching wits with Hunter Grover Logan, of the Wyoming district, who was summoned by two flockowners to give them relief from coyote raids on their lambs. He picked up the coyote trail on the Green River bank, near the bands of sheep, and following signs that indicated that the trail crossed the river, found it again on the opposite river bank. There a distinct trail led Hunter Logan about $2\frac{1}{2}$ miles to the vicinity of the den. After spending an hour or two hunting in the bottom of two dry washes, where all signs indicated the den to be located, he climbed to the bank. Partly concealed in a clump of heavy sagebrush, snuggled four coyote pups about three weeks old. They seemed to be faring well in their 1930-model home, and there were no indications that they had ever lived in another. As the mother of these pups had lost her young the season before, when Hunter Leo Smith found her den, she apparently chose the unconventional home to give her protection from the next hunter. All about this open-air den were lamb tails, pieces of pelt, and bones, and the pups had had a good fill of lamb, as a stomach examination revealed.

This wise old coyote had been crossing the river with lambs she had killed to feed her young, where the water was deep enough to make a saddlehorse swim, as the only other means of crossing within 20 miles was a hand-operated ferry. Evidence that the lambs were carried from the bands of sheep on the opposite side of the river was the fact that there had been no sheep on the side where the den was located since the first of April before lambing started. Although such coyote habits are very unusual, the rancher whose sheep the coyotes were killing reports several instances of coyotes swimming the Green River. On one occasion he shot at a pack of four swimming across it.

Hunter Has Noteworthy Record.--Donald A. Gilchrist, leader of predatory-animal and rodent control in Arizona, reports on the successful operations of George A. Logan, a hunter who began his work in that district in 1917. One of his jobs in the past three years has been to control coyotes and bobcats that were working on a flock of 14,000 sheep. Three years ago $4\frac{1}{2}$ per cent of the lambs were lost from this herd as a result of coyote and bobcat depredations. The next year the loss fell to 3 per cent, and during the past year to less than 1 per cent. This plainly indicates the value of a good hunter in the curtailment of losses to the sheep industry. During his life-time, Hunter Logan has to his credit

2,300 coyotes, 700 bobcats, 28 wolves, and 18 lions, which he has removed from ranges on which they were committing depredations. In 1929 he trapped two wolves north of Seligman that had been killing cattle in that section since 1922. During the 29 days he devoted to the capture of these wolves he found 29 head of cattle that had been recently killed. As these wolves had become trap-wise, he resorted to poison and in July, 1929, succeeded in eliminating them.

Losses in Spruce Plantations.--Leo K. Couch, leader of rodent control in Washington, reports that in an examination made in cooperation with Theo. H. Scheffer, of the Division of Food Habits Research, on forest holdings of a pulp and paper corporation in Clellam County Wash., one 40-acre tract showed that 60 per cent of 2-year-old spruces had been damaged, principally by field mice. It was also determined that the varying hare was probably responsible for some of the damage.

Successful Pocket-Gopher Control Work.--An investigation made by V. L. Johnson, of the Utah district, shows conclusively that pocket gophers may be controlled by poisoning in park and canyon areas. The work undertaken a year ago at Zion National Park has yielded praiseworthy results. Pocket gophers were causing damage to the lawn and trees directly around a hotel at Zion, and also destroying many of the young shade trees and grass plots in camping areas over the park.

LAND ACQUISITION

Division Has Birthday.--The Division of Land Acquisition passed its first birthday on July 1. To date 1,410,000 acres, comprising 50 proposed refuges in 28 States, of land and water have been examined, appraised, and mapped. The personnel of the division has increased during the year from 6 to 18, and this is shortly expected to swell further to 21.

Progress of Appraisal Parties.--D. H. Janzen and party have completed work in New Jersey and the examination of one area in New York and are now working in Maine. A new party under the direction of R. O. Gustafson has started operations in Vermont. C. H. Bennett and party, after completing work in Kentucky, returned to Nebraska to finish examinations interrupted last year by the early arrival of winter weather. A. J. Rissman and party have completed assignments in Nebraska and are now working in South Dakota.

Appointments.--On July 1 Charles S. Cook was appointed senior transitman, being transferred from the Forest Service, where he has had much experience in boundary surveys. He will be engaged principally upon the surveys of boundaries of lands to be acquired for refuge purposes, as well as upon topographic surveys for the improvement of refuge areas, and is now doing topographic-survey work in Minnesota. The appraisal and examination forces have been augmented by the recent appointments from the junior-forester register of William C. Krummes, Peter J. Van Huizen, Doren E. Woodward, and Paul T. Kreager. Messrs. Krummes and Woodward have been assigned to work with Mr. Bennett, Mr. Van Huizen with Mr. Gustafson, and Mr. Kreager with Mr. Janzen. Armand F. Allard is being appointed transitman and will soon be detailed to work at Cheyenne Bottoms, Kans.

New Assignments.--Daniel H. Janzen is being detailed to the Cheyenne Bottoms to begin the work of acquisition recently authorized by Congress. George D. Chittick will assume charge of the party formerly under the direction of Mr. Janzen.

In Washington.--C. H. Bennett recently spent 15 days on detail in Washington while Mr. Chittick was enjoying his first annual leave since coming to the Survey.

Sympathy is extended to Mrs. May R. Jeffries, stenographer-clerk, in the death of her mother, which occurred on July 23.

GAME AND BIRD CONSERVATION

Visit New England.--Mr. Sheldon spent a few days in New England in June conferring with sportsmen and game officials relative to the enforcement of the migratory bird treaty act regulations and making field investigations of the woodcock situation in Rutland County and in northern and central Vermont. He reported the presence of good numbers of native birds in New England covers, an observation corroborated by reports of others. There had been an abundance of water in New England, and a visit to some of the marsh areas on Lake Champlain indicated that there had been a favorable season for the nesting activities of black ducks, wood ducks, and teals. Many young birds of these varieties were observed. Reports generally throughout New England on the condition of the ruffed grouse were much more favorable than during the past season, and many more grouse were seen in the covers than were observed a year ago. Mr. Redington joined Mr. Sheldon at Montpelier, Vt., and spent two days as guest of State Game and Fish Commissioner E. L. Flanders.

Talks on Conservation.--Talbot Denmead addressed the members of the Severn River Association at their annual banquet held at Annapolis, Md., on June 25, on Maryland conservation matters.

Bison Range Notes.--There is a better crop of buffalo calves this year than last at the National Bison Range, Mont., even though a considerable reduction has been made in the herd. The elk show the usual steady increase. The deer suffered from the severe cold last winter, and a number died as a result of the severe weather conditions and of lack of sufficient palatable feed. Apparently as a result of an outbreak of pneumonia, the band of mountain sheep on the range has been greatly reduced in numbers. There are now on the reservation the following estimated numbers of big-game animals: Buffalo, 320; elk, 151; mountain sheep, 37; mule deer 110; white-tailed deer, 10.

Small birds seem to be more than usually abundant this year on the Bison Range, but ducks and other water birds are scarce. Protector Frank H. Rose states that there has been a marked decrease in the numbers of ducks in that region during the past two years and thinks this is due to dry weather, lack of water, and starvation in winter during periods of cold weather. Shooting, he states, is a factor in the decrease but not the major one.

Advance sheets of a good topographic map of the Bison Range published during the year by the Geological Survey will be a great help in the administration of the range and in grazing studies to be started during the coming year.

The office building at the Bison Range, which was destroyed by fire on May 1, has been replaced with a new and better structure.

Two motion-picture companies made newsreels of the buffalo on the Bison Range on June 2, and a representative of the State of Montana has been visiting the range recently, chiefly to obtain motion pictures of animals other than the buffalo.

Wind Cave Notes.--A farm lighting and power plant, obtained from the Saratoga, Wyo., Station of the U. S. Bureau of Fisheries, where it proved inadequate for their enlarged station, has been installed at Wind Cave Game Preserve, S. Dak., where it is meeting the needs.

Forage for the animals is abundant at this preserve this season, and water has been plentiful during most of the year. The following numbers of big-game animals are now on the preserve: Buffalo, 140; elk, about 30; antelope, 29.

Sharp-tailed grouse, red squirrels, and cottontail rabbits are more common at Wind Cave Preserve than last year, and Chinese pheasants are now seen occasionally, but no quail have been observed this season.

Improvements Made at Elk Refuge.--A corral for retaining elk for experimental purposes has recently been constructed near headquarters, and eight elk captured early in the spring are being held in it. A set of scales has been purchased for installation at an early date, and an electric generating plant is to be installed in the near future to furnish lights at headquarters.

Big Game at Niobrara.--Six young antelope were born at Niobrara Reservation, Nebr., this season. There are 19 buffalo calves and about 18 elk calves there, bringing the total of the buffalo herd to 117 and of the elk herd to 113 animals. There are also 15 antelope and 1 white-tailed deer on the reservation.

Sullys Hill Notes.--The following numbers of big-game animals are now on Sullys Hill Game Preserve, N. Dak.: Buffalo, 13; elk, about 30; antelope, 20 (including 5 fawns); white-tailed deer, 3. All the animals are in good condition. During the fiscal year ended June 30, 1930, 20,764 persons with 4,825 cars visited Sullys Hill Preserve.

Dry Season at Lake Malheur.--Protector George M. Benson, of Lake Malheur Bird Reservation, Oreg., reports that the Silvies River, flowing into the lake from the north, is practically dry from Burns, Oreg., to the lake, and that this is the driest season on record in that locality. The Blitzen River, flowing into the lake from the south, is also very low. Under date of June 3, Mr. Benson reported that Forster's and black terns, cinnamon teals, gadwalls, mallards, gulls, blue herons, avocets, and phalaropes were plentiful at the refuge. He saw also on that date about 100 pelicans and 50 egrets.

On June 23, Stanley G. Jewett, leader of predatory-animal control in Oregon; Ira N. Gabrielson, leader of rodent control in Oregon; and United States Game Protector Chester A. Leichhardt visited the refuge.

Inspects Bird Refuges.--Protector H. Harrison Hoyt, of Wind Cave Game Preserve, S. Dak., who has supervision over several bird refuges in the region of Wind Cave, on June 17 visited North Platte Bird Reservation, Nebr., and on June 19 Pathfinder Bird Reservation, Wyo. On June 25, he went to Belle Fourche Bird Reservation, S. Dak., and conferred with Deputy Reservation Protector Fred Winkler relative to the matter of stock trespassing on the refuge. The stock was removed and a satisfactory understanding reached with the stockmen.

Many Eggs and Birds Destroyed at Tortugas Keys.--Deputy Reservation Protector Chas. I. Park, of Tortugas Keys Bird Reservation, Fla., reports that about 8 per cent of the eggs on the area were hatched, but that heavy rains and high tides have destroyed about 5 per cent of the young birds and a considerable number of the eggs.

Birds at Conconully.--A report from Deputy Reservation Protector Chas. M. Conger, of Conconully Bird Reservation, Wash., states that there is a good hatch of mallards in the vicinity but that other species of ducks are scarce. There are less killdeer and sand snipe this year than formerly, and nongame birds in the locality are about 50 per cent less than during the past two years. Predatory birds are also scarce.

Mourning Doves and Woodcock at Big Lake.--Protector Stephen B. Crossley, of Big Lake Bird Reservation, Ark., reports the occurrence of mourning doves and woodcock in unusual numbers there.

Steamer Brings "Luxuries" to Warden in Far North.--The following excerpt is quoted from the itinerary report of George W. Taylor, stationed at Fort Yukon, Alaska, in the warden service of the Alaska Game Commission:

"June 6, 1930. First river steamer of the year arrived 9:30 p.m. Local Holiday. First fresh fruits we have had for over six months. This sure has been a tough winter on the local grub pile, and we will have to get acquainted with the taste of these fancy things."

Complete First Six Months as Inspector.--Lee S. Crandall completed his first six months as inspector of foreign birds and mammals at the port of New York, N. Y., on June 30, and was relieved by B. S. Bowdish, who took over the work on July 1.

Inspector Returns from Europe.--H. S. Swarth, inspector of foreign birds and mammals at the port of San Francisco, who has been in Europe since early in May attending the International Ornithological Congress at Amsterdam as a delegate from this Department, visited offices of the Survey about June 25 on his return. While in Washington, Mr. Swarth visited several points of interest, including the National Zoological Park, where he observed most of the birds on exhibition.

Treaty-Act Cases Reported during June

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> |
|------------------------------|--------------|----------------|--|
| Barmeier, Davis**, Taft** | 1 | Missouri | Killing and possessing a duck and grebe in close season |
| Johnson | 6 | Louisiana | Selling ducks |
| Lewark* | 2 | North Carolina | Hunting and killing coots from a motor boat and in close season |

* U. S. Deputy Game Warden

** Deputy State Game Warden

Treaty-Act Cases Terminated--Reports Received during June

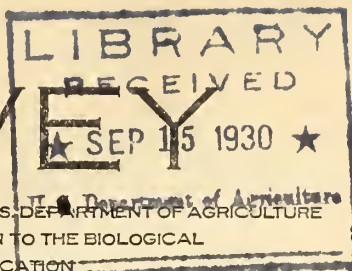
| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> | <u>Fine</u> |
|---|--------------|----------------|---|---------------------------------|
| Barmeier, Adams*, Miller* | 1 | Illinois | Killing and possessing ducks in close season | \$15 and costs of \$45 |
| Charlton, Leggett*, McDonough* | 1 | Michigan | Selling ducks | 6 months in jail-- suspended |
| Creech* | 1 | Illinois | Hunting ducks in close sea- son | \$10 and costs of \$35 |
| Farnham, Anderson**, Sutherland**, White** | 1 | New York | Hunting ducks from a motor boat | \$10 |
| Johnson | 2 | Louisiana | Selling ducks | 30 days in jail each |
| " | 1 | " | Selling ducks | 30 days in jail-- suspended |
| Kelsey | 6 | Florida | Hunting ducks from a motor boat | \$5 each |
| Kelsey, Winne** | 16 | " | Hunting ducks from a motor boat | \$5 each |
| Lane, Newark | 3 | North Carolina | Hunting and killing water- fowl after sunset | \$5 each |
| Perry, Fontaine** | 1 | Mississippi | Possessing a meadowlark | \$10 |
| Perry, Lawhorn**, Nill**, Yowell** | 2 | Kansas | Possessing ducks in storage in close season | \$25 each |
| Riddick, Thomason** | 2 | Arkansas | Possessing meadowlarks | \$1 each |
| Roahen | 1 | Illinois | Killing ducks after sunset | \$15 and costs of \$35 |
| " | 5 | Indiana | Possessing ducks in cold storage in close season | \$10 each |
| Roahen, Carlock*, Fidler* | 1 | Illinois | Hunting ducks in close season | \$15 and costs of \$35 |
| Roahen, Lawrence* | 2 | " | Killing ducks from a motor boat | \$25 each |
| Roahen, Raeth** | 1 | Wisconsin | Possessing ducks in storage in close season | \$50 |
| Smith, Wallace* | 1 | Maine | Killing a duck in close sea- son | \$5 |
| Stadlmeir | 1 | New Jersey | Killing protected shorebirds | \$5 |
| Steele, Creighton* | 1 | Maryland | Possessing a duck in close season | \$5 and costs |
| Whitehead | 1 | Georgia | Killing and possessing robins | \$5 |
| Whitehead, Hutson* | 1 | South Carolina | Killing and possessing a duck in close season | \$20 |

* U. S. Deputy Game Warden

** Deputy State Game Warden

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B525

THE SURVEY



ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE
CREDIT FOR MATTER REPRINTED FROM THESE PAGES SHOULD BE GIVEN TO THE BIOLOGICAL
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Vol. 11

Washington, D. C., August 30, 1930

No. 8

Henry Wetherbee Henshaw

Henry Wetherbee Henshaw, chief of the Bureau of Biological Survey from June 1, 1910, to December 1, 1916, died at a local hospital in Washington on August 1, 1930, at the age of 80 years. He was born at Cambridgeport, Mass., on March 3, 1850. He early became associated with local bird students, and his collections and interest in ornithology coming to the attention of Spencer Fullerton Baird, then secretary of the Smithsonian Institution, he was designated by the latter as naturalist on the Wheeler Survey of the West, 1872-1879. During these years he made extensive collections of birds in sections some of which had never before been traversed by a white man. These specimens now form part of the collection of the U. S. National Museum at Washington and of the British Museum at London.

With the termination of the western field surveys, Mr. Henshaw was for the next few years connected with the Bureau of Ethnology, of the Smithsonian Institution, and in this work traveled extensively in the West, working on the census of the Indian tribes, and collaborating in the publication by the Bureau of Ethnology of the Handbook of American Indians. His aspirations, after so many years' familiarity with the Western States, were to pursue further ornithological research in the region, but in 1894 ill health led him to the Hawaiian Islands, where he resided for ten years, one result of which was his "Birds of the Hawaiian Islands," published privately in Honolulu in 1902.

His health fully restored, he came to Washington, entered the Bureau of Biological Survey in 1905 as administrative assistant, and later became assistant chief of bureau. On the resignation of Dr. C. Hart Merriam in 1910 he succeeded to the position, filling it until ill health again forced a change in work, when he was succeeded by Dr. E. W. Nelson. It is interesting to note that when the present Bureau of Biological Survey was being established in 1885 as the Division of Economic Ornithology and Mammalogy, and the officers of the American Ornithologists' Union were called upon to nominate a director of the new work, it was Mr. Henshaw who nominated Doctor Merriam, and that 25 years later he succeeded him as chief, and that on retiring he recommended his then assistant chief, Doctor Nelson, to succeed him. His death marks the only break in the list of chiefs of the Biological Survey from 1885 to the present.

The outstanding contributions of Mr. Henshaw to the work of the Biological Survey were his emphasis of the economic side and a popularization of information regarding birds. His work in this field produced the publication in 1913 of Farmers' Bulletin 513, which contains descriptions and illustrations in color by Fuertes of fifty common birds of farm and orchard, one of the best-known and most popular bulletins of the Department. This same work, with additions on game birds, warblers, and other species, also illustrated by Fuertes, later appeared in the National Geographic Magazine, and was reissued in book form under the title of "The Book of Birds."

Mr. Henshaw was a fellow and twice vice president of the American Ornithologists' Union, a founder and charter member of the Cosmos Club, member of the Anthropological Society of Washington and (1889-1893) editor of the American Anthropologist, one of the founders of the Nuttall Ornithological Club (1871), which paved the way for the organization of the American Ornithologists' Union, and member of the Cooper Ornithological Club. Among local scientific societies with which he was affiliated were the Biological Society of Washington, the Philosophical Society of Washington, the Washington Biologists' Field Club, and the Baird Ornithological Club. Mr. Henshaw never married.

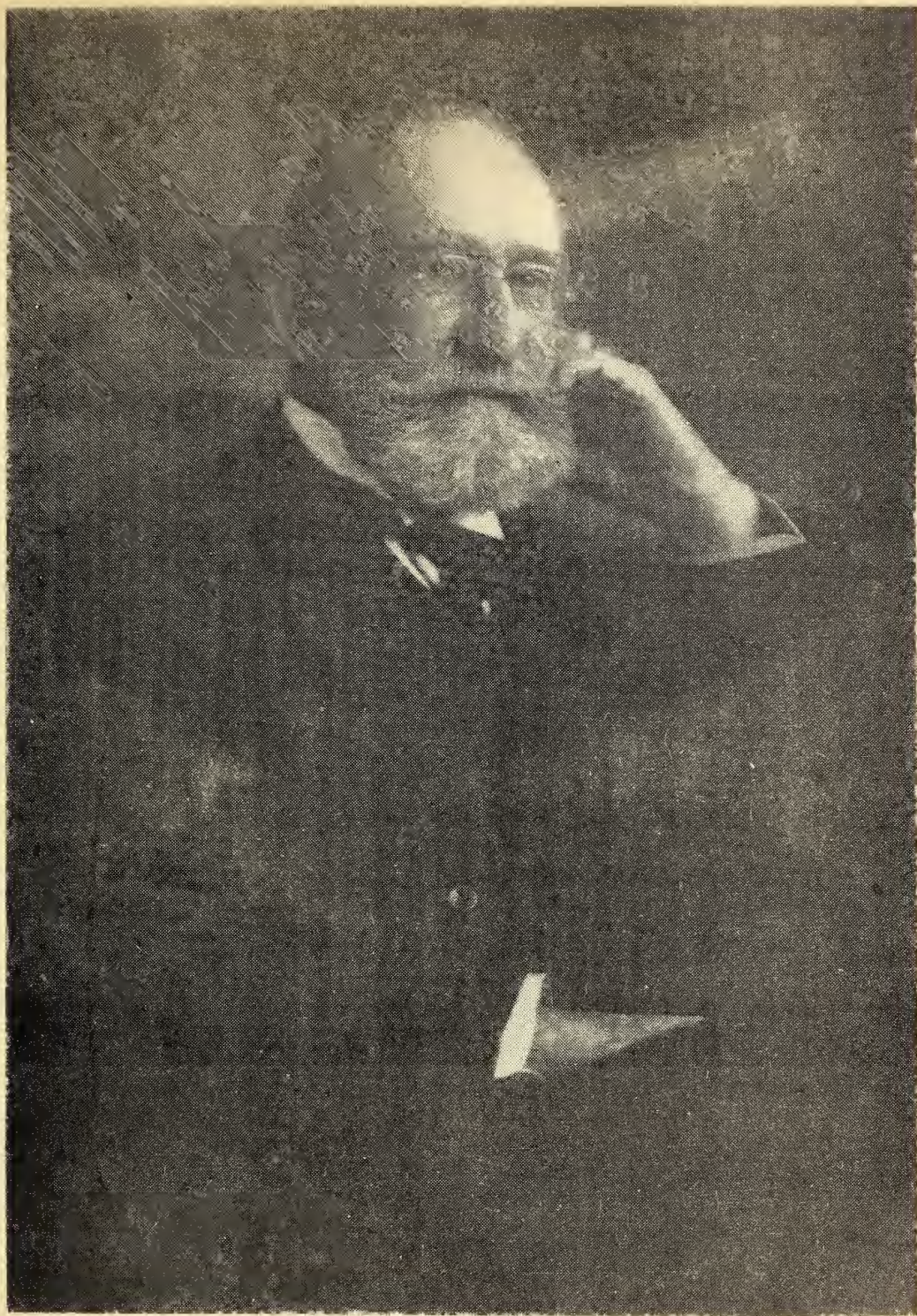
After his resignation as its chief, Mr. Henshaw continued with the Biological Survey as consulting biologist until his retirement from the public service in 1920. In 1919-20, in the pages of *The Condor*, at the request of the editor, he published an interesting series of "autobiographical notes," reviewing the principal events of his career as related to ornithology. He had been induced to make this important contribution because of the side-lights it might throw on the character and work of the men he had met and on conditions affecting natural sciences in times past.

The funeral services were held in Washington, D. C., on August 4, and in accordance with a request made years ago were conducted by Mr. Henshaw's nephew, the Rev. Dr. Walter F. Greenman, of Augusta, Me. In attendance were his brother, Frank A., and his wife, of Chicago, Ill., and a niece, Mrs. Greenman, besides many of his former associates of the Biological Survey, the Smithsonian Institution, and the National Museum, and members of scientific societies with which he had been connected. Interment was in the Henshaw plot in the Cambridge Cemetery, Cambridge, Mass. The following letter, under date of August 10, came to the Biological Survey from Doctor Greenman:

"Mrs. Greenman and I want to express our deep appreciation of the beautiful flowers that came in the name of Associates in the Biological Survey for Mr. Henshaw's funeral service. The presence of that body of fine-looking men, the instant responsiveness of their countenances to every point in the tribute I did my poor best to make adequate, all confirmed in comforting fashion my own valuation of the man."

GENERAL NOTES

Senate Committee Inspects Upper Mississippi Refuge.--With three members of the Senate Committee on Wild Life Resources--Senators Walcott, Hawes, and Pittman--and their secretary, Morris Legendre, and special investigator, Carl Shoemaker, Mr. Redington spent the period from the middle of July until August 10 inspecting the Upper Mississippi River Wild Life and Fish Refuge. A personal investigation of the possible future developments of the refuge was made by the committee, all members of which have an active interest in wild-life conservation. There appeared before them, at their headquarters near Wabasha, Minn., certain army engineers, who explained future plans for stabilized water levels on the Upper Mississippi; a representative of the Forest Service, who has been studying locally the cause and effect of soil erosion in relation to farmland destruction and river silting; representatives of the Bureau of Fisheries, who gave the committee important information on the fish life of the refuge and its needs; Vernon Bailey, of the Division of Biological Investigations of the Survey, who testified as to the abundance of wild life of the region; F. M. Uhler, of the Division of Food Habits Research, who presented his findings on the nature and extent of wild-fowl food resources near Keokuk Dam, Iowa; and administrative officials of the refuge. By means of tours of the refuge in boats of the Biological Survey and of the Bureau of Fisheries, the party was enabled to obtain a good mental picture of the region. On the conclusion of its stay at the refuge, the committee and its entourage visited interesting points in the northern lake district of Minnesota, traveling by rail, boat, automobile, and aquaplane.



HENRY WETHERBEE HENSHAW
SECOND CHIEF, BUREAU OF BIOLOGICAL SURVEY
JUNE 1, 1910 - DECEMBER 1, 1916
DIED AUGUST 1, 1930



Attend Sessions of Wild-Life School.--Mr. Redington, Vernon Bailey, and Ray C. Steele, superintendent of the Upper Mississippi River Wild Life and Fish Refuge, represented the Biological Survey during the first week of the twelfth annual American School of Wild Life Protection, held at McGregor, Iowa, August 4 to 16. The program for August 5 included a lecture by Mr. Redington on the work of the Biological Survey, and one by Mr. Steele on the Upper Mississippi Refuge. Mr. Bailey during the course of the sessions gave a series of talks on the following subjects: "Mammals of the Upper Mississippi River Wild Life Refuge," "Animal Life of the Grand Canyon," "Shall We Teach the Boys to Hunt and Trap?" and "Predatory Animals and Their Control." Other prominent speakers on the program included Governor John Hammill, of Iowa; Dr. Glenn Frank, president of the University of Wisconsin; Dr. Melvin R. Gilmore, of the University of Michigan; and Mrs. Florence Merriam Bailey. On the final day of the school, Saturday, August 16, those in attendance were taken on an all-day boat excursion through the Upper Mississippi River Refuge.

Attend Game Conferences.--Mr. Redington and H. P. Sheldon left Washington on August 20 to attend a meeting of Dominion and Provincial game officials at Ottawa, Canada, August 21-22; a conference of game officials of the North-Central States at Milwaukee, Wis., August 23; and the annual meeting of the International Association of Game, Fish, and Conservation Commissioners, at Toronto, Canada, August 25-26. At the Toronto gathering Mr. Redington gave an address on matters of outstanding interest in the work of the Biological Survey during the past year. After the meeting he left for Denver, Colo., to be present at a conference of Bureau officials connected with the Control Methods Research Laboratory, Mr. Sheldon returning to Washington.

Pass Vacation in Nova Scotia.--The Associate Chief and Mrs. Henderson left Washington on July 21 for a month's vacation in Nova Scotia. They motored from Washington to Boston, where they spent a short time with relatives, and sailed from there on July 24 for points north. Mr. Henderson returned to the office on August 22, but left again the next day to attend the meeting of the International Association of Game, Fish, and Conservation Commissioners, at Toronto, Canada, after which he started on an inspection tour in western States.

Changes in Editorial Office Personnel.--Mrs. Jewell Kennedy Burnett, who has been clerk-typist in the Editorial Office since May of this year, was transferred to the Denver, Colo., office, of the Division of Predatory-Animal and Rodent Control, effective August 4, to fill the vacancy caused by the resignation of Miss Idella Ustrud, who was recently married.

Miss Gary E. Turner, of Virginia, was transferred from the War Department, effective August 25, to fill the position in the Editorial Office.

Appointment in Accounts Office.--Lee D. Sinclair was appointed clerk in the Office of Accounts, effective August 1. Mr. Sinclair comes to the Bureau by reinstatement in the Government service, having formerly been employed in the War Department and in the Department of Commerce.

Official Publication.--The following official publication of the Bureau was issued during the month:

"Open Seasons for Game, 1930-31," compiled by Frank L. Earnshaw and Frank G. Grimes. Poster 49 (Bi). Revised, August 5.

Books Written by Survey Men.--An important addition to conservation literature is a revised edition of Van Hise's "Conservation of Our Natural Resources," prepared under the direction of Prof. Loomis Havemeyer, of Yale University, and published by the Macmillan Co. The chapter on "Wild Life," added in the revision, was prepared in the Biological Survey under Mr. Redington's direction and authorship, with sections on the conservation of fishes, prepared at Mr. Redington's suggestion, by Elmer Higgins, of the U. S. Bureau of Fisheries. All phases of wild-life conservation are discussed, and the chapter should fill a recognized need in educational work in this field. The fact that invitation was thus extended to prepare the added chapter is significant of the trend toward increased recognition of the place of wild life in the general scheme of conservation and of the reputation of the Survey in this field.

The latest contribution to a series of nature books edited by Dr. H. H. T. Jackson, of the Division of Biological Investigations, is a 241-page monograph by Vernon Bailey, also of Biological Investigations, on "Animal Life of Yellowstone National Park," published by Charles C. Thomas, of Springfield, Ill. The book is based on many trips made by the author and others to Yellowstone Park in the course of Biological-Survey work, and should be of interest not only to naturalists and nature lovers generally, but also to park visitors. It contains a colored map and a description of the four life zones of the Yellowstone, with extensive chapters on the mammals and birds and shorter ones on the fishes, reptiles, amphibians, and invertebrates of the region. Two colored plates, one of grizzly bears and one of rosy finches, are from paintings by Olaus J. Murie, biologist of the Bureau; and another, of the bald eagle, is from a painting in the possession of the Survey by the late Robert Ridgway.

Another book, by Frank G. Ashbrook, in charge of the Division of Fur Resources, is entitled "Rabbits for Food and Fur" and is published by the Orange Judd Co., of New York, in their Poultry and Pet Stock series. It is a succinct summary of the information desired by the beginner in rabbit raising and by the more experienced breeder who wishes to conduct his business on sound lines. The 13 chapters treat of such matters as history, advice to beginners, choosing rabbitry site and breeds, practices in breeding, feeding, disease prevention and treatment, and general management of stock, with hints on judging at exhibitions, preparing rabbits for market, tanning skins, and marketing both fur and meat, and a final chapter on tested recipes for cooking domestic rabbits. The new book is well illustrated and has a comprehensive index.

Mr. Ashbrook's book "Fur Farming for Profit," published by Macmillan in 1928, has recently been translated into Norwegian and edited by Andr. A. Stadheim, and republished at Oslo, Norway.

Method of Numbering Pages of THE SURVEY Changed.--Hereafter, to facilitate indexing, the pages of THE SURVEY will be numbered serially by volume, starting in this issue with page 93. Those maintaining complete files may find it desirable to renumber the pages of Numbers 1 to 7 of the current volume (11) as follows: January, pages 1 to 13; February, 15 to 24; March, 25 to 37; April, 39 to 56; May, 57 to 67; June, 69 to 79; July, 81 to 91.

Bureau Participates in Agricultural Editors' Meeting.--In connection with the seventeenth annual meeting of the American Association of Agricultural College Editors, held in the new administration building of the Department during the week of August 25, the Biological Survey contributed, as did other bureaus of the Department, a small exhibit depicting one phase of its work. That selected by the Survey was the experimental work in bird-attraction methods, the exhibit consisting of a bird house and samples of bulletins, press releases, and radio talks designed to interest the public in the subject. At the annual banquet of the association, held at the National Press Club on August 27, in the absence of Secretary Hyde, who was unexpectedly called out of the city, Charles S. Wilson, member of the Federal Farm Board, addressed the editors of the Department and of the 31 States represented, on the work of the board. Members of the Biological Survey present were Dr. W. B. Bell, acting chief; Wm. H. Cheesman, editor; and Paul H. Oehser, assistant editor.

BIOLOGICAL INVESTIGATIONS

Additional Biologist to Study Relationship of Rodents to Forests.--S. B. Locke, for many years a member of the Forest Service staff and well known from his studies of game animals, has been appointed, effective August 1, as associate biologist in the Survey. He will make his headquarters at the Intermountain Forest and Range Experiment Station at Ogden, Utah, his principal assignment for the present being a study of the effect of rodents on the forest, with special reference to their relation to soil erosion and soil building.

On Five Months' Furlough.--Oliver L. Austin, Jr., who has been stationed at the Lake States Forest Experiment Station, at University Farm, St. Paul, Minn., has been granted a furlough for the period September 1, 1930, to January 31, 1931, to permit him to continue graduate work at Harvard University.

Personnel Changes.--John G. May, formerly assistant in the bird-banding section, was transferred to the Bureau of Agricultural Economics on August 1, 1930. Richard N. Crack has been transferred from the Mails and Files Section to the position made vacant.

FOOD HABITS RESEARCH

Breeding Birds Decrease at Experimental Chestnut Orchard.--For the first time in the five years that the project in attracting birds to the Experimental Chestnut Orchard of the Bureau of Plant Industry at Bell, Md., has been carried on, it has been marked by a decrease in the number of broods produced. The number of broods or partial broods to the acre produced the first year (1926) was 6.8. In the following three years this figure rose steadily, as follows: 1927, 16; 1928, 18.5; and 1929, 25.4. In 1930 the number of broods to the acre was 19.4, and this decrease affected all the more prominent species to about the same extent. The number of broods of European starlings dropped from 35, the high figure of 1929, to 28; that of house wrens, from 33 to 23; and that of purple martins, from 10 to 7. These figures are for birds nesting in houses only and do not include tree- and bush-nesting species. A factor that may be the cause of the decrease noted is the unusual drought of the 1930 season.

Duck Sickness at Klamath Lake.--E. R. Kalmbach reports that birds are beginning to succumb to the duck sickness in the Klamath Lake region and states that there will probably be an extensive outbreak of the malady this season. Dr. James F. Couch, associate chemist of the Bureau of Animal Industry, has been detailed to make biochemical studies of the trouble; a work which is greatly needed.

Inspect Bird-Refuge Sites.--Francis M. Uhler, after completing his work on Keokuk Lake, Iowa, where he found the effect of the dam to be favorable for aquatic plants, went to Winona, Minn., and reported on this study and on his surveys of other plants throughout the Upper Mississippi Wild Life Refuge to the Senate Committee on Wild Life Resources. He then proceeded to Nebraska, where with A. C. Martin he surveyed a tract suggested for acquisition as a Federal migratory-bird refuge. The area was found to be well adapted to the purpose. Before returning to Washington, Mr. Martin inspected one other site in Nebraska and one in Indiana. Mr. Uhler is spending some weeks on annual leave at his former home in St. Peter, Minn.

Game-Bird Studies Progress.--Herbert L. Stoddard and Wallace B. Grange have returned from a 5-weeks' visit to points in the mid-West where they worked in the laboratory and in the field with all the fellowship holders engaged upon game-bird studies. They report excellent progress on all the investigations.

Appointments.--Three new appointments have been made in connection with work in food-habits research: Leon H. Kelso, of Colorado, who reported for duty August 11; J. Paul Miller, of Washington, who began work August 15; and Johnson A. Neff, of Missouri, on August 16. It is planned to assign one of these to work at the Northeast Forest Experiment Station, at Amherst, Mass.; one to miscellaneous field work in the West, with headquarters not yet selected; and one for similar duties with headquarters in Washington, D. C.

FUR RESOURCES

Government Exhibit at IPA Well Received.--Favorable reports have been received concerning the United States Government's exhibit at the Internationale Pelzfach Ausstellung in Leipzig, Germany. The Fur Trade Review for August says: "It is one of the most interesting and constructive on display. It has won unstinted praise from those in the best position to judge its merits. It has done more than the exhibit of any other country to teach the fur trade and the public the importance of the conservation of wild life and the possibilities of fur farming on a scientific basis." About 250 persons, representing 24 nations, were present at the opening of the World Fur Congress on June 23. From this Congress resulted the formation of an International Federation of the Fur Industry. Mr. Ashbrook left Leipzig shortly after the Congress adjourned and is visiting points in Germany, Norway, Denmark, and Sweden, and collecting information on fur-farming conditions in these countries.

Addresses Veterinarians and Tours West.--Dr. J. E. Shillinger left Washington on August 18 to visit several points in the West and to attend the annual convention of the American Veterinary Medical Association at Los Angeles, Calif., August 26 to 29. He delivered an address at this meeting on the subject "Veterinary Problems on Fur Farms" and showed the Department's motion picture "The Fur Industry of the United States." At the Rabbit Experiment Station, at Fontana, Calif., he conferred with Director John W. Meyer regarding the rabbit project, especially the disease situation. He will return to Washington about the middle of September, stopping en route at fur farms in the vicinity of Sacramento, Calif., Seattle, Wash., and Billings, Mont., and at Minneapolis, Minn., to confer with Dr. R. G. Green, of the University of Minnesota Medical School, regarding the cooperative fur-animal disease project.

Called to Fox Ranch.--Dr. Karl B. Hanson, in charge of the Fur-Animal Experiment Station, at Saratoga Springs, was called to a fox farm at Eoonville, N. Y., early in the month to assist in controlling an outbreak of disease among the animals.

PREDATORY-ANIMAL AND RODENT CONTROL

On Extended Field Tour.--Mr. Young left Washington on August 3 for an extended tour of inspection in several western States. During the latter part of August he attended a conference of workers connected with the Control Methods Research Laboratory at Denver, Colo.

Huge Bounty Fraud Unearthed.--One of the most extensive bounty frauds yet uncovered was recently brought to light by officials in Graham County, Kans. Confessions obtained from the 70-year-old leader of a ring of bounty thieves show that since 1912 their fraudulent operations had been carried on in 30 Kansas counties, and probably also in Nebraska. It is estimated that at \$1 each on coyote scalps Kansas has paid on the average \$10,000 a year for the past 18 years, or a total of approximately \$180,000 since the inception of this fraud. According to the confessions, this ring purchased scalps from two fur houses at prices ranging from 25 to 50 cents each and then presented them in lots of 25 to 50 for the collection of bounty in the various counties of Kansas. The members of the gang were soon able to detect officials who might become suspicious of their operations and would not return to victimize those counties. As a result of prompt and vigorous prosecution by county authorities, four men pleaded guilty and were sentenced to hard labor in the State penitentiary. This closes another chapter in the long series of fraudulent claims unearthed in States that are endeavoring to control predatory animals by means of bounties.

Pocket-Gopher Control Increases Forage.--Ira N. Gabrielson, leader of rodent control in Oregon, reports that a recent inspection of areas treated for pocket-gopher control in the Cascade and Umpqua National Forests two years ago and re-treated last year showed most encouraging results. Many sections indicated practically 100 per cent success. In some areas that were beginning to erode badly two years ago, grasses and other vegetation are now rapidly obtaining a foothold. A sheepman whose grazing allotment includes portions of these areas stated that there is now at least 50 per cent more grazing than two years ago.

Speaks at Woolgrowers' Meeting.--Leader Adolph Hamm attended the annual meeting of the Wyoming Woolgrowers' Association, at Buffalo, Wyo., July 14 to 16, and discussed the activities of the Bureau in rodent and predatory-animal control operations for the year. He states that the sheepmen reported favorably on the Bureau's program and endorsed a resolution requesting liberal State and Federal appropriations to extend the work.

Hunters Hold Conference in Utah District.--George E. Holman, leader of predatory-animal control in Utah, reports that a conference of hunters in the Utah district was held in Strawberry Valley, in the Uintah National Forest, on July 31 and August 1 and 2. Camp was pitched, a cook employed, and the hunters enjoyed three days of real instruction in the outdoors. Among prominent cooperators in the Utah district who addressed the hunters were representatives of the State Board of Agriculture, the Extension Service, the Forest Service, and the Utah Woolgrowers' Association. F. E. Garlough, in charge of the Control Methods Research Laboratory, at Denver, and R. Scott Zimmerman, leader of rodent control in Utah, also were in attendance. Mr. Holman states that all but two of his entire force of 30 hunters were present and showed their enthusiasm by attending at their own expense.

Death of Utah Hunter.--Roy Robinson, who has been employed as a hunter in the Utah district during the past 5 years, died at American Falls on July 23, as a result of a foot infection. During the time he was connected with the predatory-animal forces, he proved to be a capable and conscientious worker. Sympathy is extended to his wife and mother in their bereavement.

R. K. Stewart Transferred to Wyoming.--R. K. Stewart, who has been in charge of the Bureau's predatory-animal control activities in Alaska for the past three years, has been transferred to Wyoming as assistant in that district. Mr. Stewart conducted a successful campaign in Alaska and organized and trained local trappers in methods of wolf and coyote control, but he welcomes the opportunity to return to the States.

R. P. McFarland and Idella Ustrud Married in Denver.--Best wishes are extended to Miss Idella Ustrud, stenographer-clerk in the Denver, Colo., office, and Robert P. McFarland, assistant in predatory-animal control in the Colorado district, who were married in Denver on August 7. Miss Ustrud will be remembered by many in the Washington office, having been clerk in the Division of Economic Investigations during her first two years in the Government service, 1918-1920. She was transferred to the Oregon office of the Division in 1920 and to Colorado two years later. She has been connected with the Denver office for nearly 8 years. Mr. McFarland has been a member of the Survey staff since February, 1929. After a motor trip to South Dakota, Montana, and the Yellowstone National Park, the couple will make their home at Craig, Colo., Mr. McFarland's field station. The position made vacant by Mrs. McFarland's resignation has been filled by the transfer from Washington of Mrs. Jewell Kenned Burnett, whose home was originally in Colorado.

LAND ACQUISITION

Work Started on Cheyenne Bottoms Refuge.--Armand F. Allard, senior transitman, who was appointed on August 1, has been detailed to Great Bend, Kans., to start survey work on the lands to be acquired for the Cheyenne Bottoms Migratory Bird Refuge, which was authorized by act of Congress approved on June 12. Daniel H. Janzen, formerly in charge of a field crew examining areas in several States for migratory-bird refuge purposes, has also been detailed to this project to assist in the land-appraisal work; and Earl W. Frost, an attorney attached to the Solicitor's office, has been assigned to handle the legal work.

Work on Proposed Refuge in Northern Minnesota.--Early in July a topographic survey of a proposed refuge in northern Minnesota was begun, the operations being conducted by Senior Transitman Charles S. Cook. Engineering facts are being gathered with dispatch, and reports indicate that within a relatively short time all the essential details will be in hand. The information is being gathered to enable the Survey to determine what may be done toward establishing a migratory-bird refuge in the region and the approximate cost of restoring a now desolate area to its natural condition.

Progress of Field Parties.--Albert J. Rissman's party has completed work in South Dakota and is now in North Dakota examining areas in that State that have been suggested as suitable for migratory-bird refuges. The crews headed by R. O. Gustafson and C. H. Bennett are continuing work in Vermont and Nebraska, respectively. The party formerly headed by Daniel H. Janzen is being directed by George D. Chittick and is conducting operations in Maine.

Inspects Field Projects.--Arthur A. Riemer, who has charge of the engineering work of this Division, left Washington on August 7 for Great Bend, Kans., to inspect the work begun on the Cheyenne Bottoms project, and then proceeded to northern Minnesota to inspect survey work there. Before returning to Washington, Mr. Riemer plans to visit the Upper Mississippi River Refuge to confer with Superintendent Steele and the men engaged in boundary surveys in regard to condemnation cases that are to be instituted.

Progress at Bear River Summarized.--The following statistics have been assembled covering the land status on the Bear River Refuge as of June 30, 1930: Lands purchased, 15,860.65 acres; public lands withdrawn, 30,632.12 acres; State cession lands, 2,132.85 acres; lands leased, 7,860.98 acres; and right-of-way easement, 0.14 acre; or a total of 56,486.74 acres. After deducting withdrawn lands exchanged, amounting to 4,099.8 acres, the net refuge area is 52,386.94 acres. During the fiscal year 1930 there was expended for lands \$24,547.28; other expenditures for acquisition purposes amounted to \$307.41, making a total of \$24,854.69. The average cost an acre for lands purchased was \$1.55.

Upper Mississippi River Refuge Progress.--The following figures cover the land status on the Upper Mississippi Wild Life Refuge as of June 30, 1930: Of the 163,468 acres within the boundary of the refuge, 19,162 acres are agricultural and semiagricultural lands, 20,000 acres are unsuited for purchase, 9,743 acres are State and city owned, 25,018 acres are public domain (part of refuge by Executive orders), 1,650 acres were acquired by gifts and cessions, 8,777 acres are under contract, and 56,548 acres are actually paid for, leaving 22,570 acres to be taken under contract. The cost of examining and appraising 225,000 acres was \$22,500, or at the rate of 10 cents an acre. This calculation is based on land area examined and takes no account of approximately 70,000 acres of interlocking waters that were covered by examinations. For making boundary surveys \$10,939 has been expended; and \$40,-393.46 for negotiating for 65,325 acres under contract or acquired, or an average of 62 cents an acre. This figure is based on the tracts covered by contracts, although all the tracts within the refuge have been negotiated for. The average cost of lands taken under contract is \$6.29 an acre, and the average cost of lands paid for is \$6.06 an acre.

Appointments.--Miss Lois Jean Rowse, of Pennsylvania, has been appointed junior stenographer-typist in the Washington office, effective August 13, by transfer from the Veterans' Bureau, and Cecil E. Fletcher, of Oregon, has been appointed transitman, effective August 18. Mr. Fletcher will be assigned to duty on the Upper Mississippi Refuge.

GAME AND BIRD CONSERVATION

Gives Radio Address.--Talbot Denmead, assistant United States game conservation officer, gave a radio talk on "The Migratory Bird Situation in Virginia and Federal Game Regulation" from Station WJSV, Mount Vernon Hills, Va., on the evening of August 29 under the auspices of the Virginia Commission of Game and Inland Fisheries.

Returns from Western Trip.--W. R. Dillon, assistant United States game conservation officer, and Frank L. Earnshaw, administrative assistant in charge of game and bird reservations, have returned from a tour of inspection in the West, during which they visited the National Bison Range, Mont., the Wind Cave Game Preserve, S. Dak., the Elk Refuge, Wyo., Niobrara Reservation, Nebr., and the Bear River Migratory Bird Refuge, Utah.

New Cruiser Purchased.--The Department recently purchased a 38-foot cruiser for use by the enforcement personnel of the Survey in the Potomac area. Equipped for service it provides cabin space for four persons and will develop a speed of 30 miles an hour. With this new boat the United States game protector in charge of the district will be able to accomplish much more effective patrol of the shooting areas in the Potomac and near-by coastal waters than was heretofore possible. On a test trip, prior to the purchase of the boat, Assistant Secretary Dunlap was among those aboard.

Effect of Drought on Game.---The United States game protectors in some of the States stricken by the drought report that many sloughs, ponds, and small lakes are dry and that the larger bodies of water are at the lowest level known for many years. Information has been received that some of the best waterfowl lakes in Missouri and Illinois are dry. Little mortality to game has as yet resulted from the drought, but it is causing the concentration of birds at places where water is still available. Many of the large duck clubs are pumping or preparing to pump water into their lakes from larger bodies of water, and State game departments are transferring fish from one point to another or pumping water into the smaller streams.

Resigns to Enter National Park Service.--On August 15, 1930, David H. Madsen, superintendent of the Bear River Migratory Bird Refuge in Utah, severed his connection with the Biological Survey to accept appointment in the National Park Service of the Department of the Interior as assistant land purchaser, to take charge of the purchase of private land holdings for various national parks. He entered upon his new duties on August 16. Before coming to the Survey, Mr. Madsen, a native of Utah, was State game and fish commissioner of that State, and also a member for nearly three years of the Migratory Bird Treaty Act Advisory Board. While he was game commissioner rapid strides were made in Utah in the construction of fish hatcheries and rearing ponds and the establishment of State shooting grounds. He was one of the organizers, and the first president, of the Western Association of State Game Commissioners, which embraces 11 western States and 2 Canadian Provinces. He also has been president of the International Association of Game, Fish, and Conservation Commissioners. He entered the service of the Biological Survey on July 2, 1928, resigning his office as State Game and Fish Commissioner to accept appointment as superintendent of the Bear River Migratory Bird Refuge. During his service with the Survey he has established an enviable reputation as an administrator. While the Survey regrets to lose the valuable services of Mr. Madsen, heartiest wishes are extended to him for success in his new field of activities.

Deer Received at Sullys Hill.--Two young deer, a buck and a doe, were received at Sullys Hill Game Preserve, N. Dak., on July 25, from Duluth, Minn., gifts of the State Game Commission of Minnesota. The male had one knee badly injured in transit, but the wound is yielding to treatment.

Birds at Savannah River Refuge.--Thousands of wood ducks, many more than have been on the area for several years, were reported in the region of the Savannah River Bird Refuge, S. C., during the breeding season just past.

Addresses Meeting of Game League.--Superintendent R. C. Steele, of the Upper Mississippi River Wild Life and Fish Refuge, addressed the annual meeting of the Minnesota Game Protective League, at Fairmont, Minn., on August 8 and 9.

Refuge-Act Case Terminated.--Upon plea of guilty to trapping on the Upper Mississippi Refuge contrary to regulations, a resident of Wabasha, Minn., was fined \$100 and costs of \$20 in Federal court at Superior, Wis., on August 6. In addition, a canoe, traps, and other paraphernalia seized at the time of the arrest were ordered confiscated by the court and turned over to the superintendent of the refuge. Junior Ranger Hall and Deputy Ranger Berni obtained the evidence in this case.

Alaska Game Commissioner Reappointed.--On recommendation of Mr. Redington, Secretary Hyde reappointed Irving McK. Reed, of Fairbanks, Alaska, as Alaska game commissioner, effective July 1, 1930, to represent the fourth judicial division of the Territory for a term of four years. Mr. Reed has been a member of the commission since January 1, 1928, when on the resignation of Dr. Preston S. Whitney as commissioner from that division, he was appointed to complete the unexpired term.

Treaty-Act Cases Terminated--Reports Received during July

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> | <u>Fine</u> |
|------------------------------|--------------|--------------|---|-------------------------|
| Merovka, Riddick, White** | 1 | Arkansas | Possessing wood ducks | \$25 |
| Roahen | 1 | Illinois | Hunting ducks in close season | \$15 |
| " | 1 | Wisconsin | Possessing waterfowl in close season | \$50 |
| Shaver | 1 | " | Killing a yellowlegs | \$5 |
| Shaver, Rogalla* | 1 | " | Selling ducks | \$100 and costs of \$20 |
| Shaver, Vogel* | 3 | Minnesota | Selling ducks | \$50 each |
| " " | 1 | " | Selling ducks | \$25 |

Upper Mississippi River Refuge Cases Terminated during July

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> | <u>Fine</u> |
|-----------------------------|--------------|--------------|---------------------------|-------------------------|
| Lundberg*, Berni*, Hall* | 1 | Wisconsin | Trapping on a closed area | \$100 and costs of \$20 |

Treaty-Act Cases Reported during July

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> |
|-------------------|--------------|----------------|--|
| Barmeier, Miller* | 2 | Arkansas | Hunting ducks in close season |
| Birsch, Lewark* | 2 | North Carolina | Killing and possessing ducks in close season |
| Harris* | 1 | Arkansas | Possessing ducks in storage in close season |
| Ransom, Russell** | 1 | Idaho | Hunting ducks after sunset |

* U. S. Deputy game warden.

** Deputy State game Warden.

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★ OCT 16 1930

U. S. Department of Agriculture

No. 9

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GENERAL NOTES

Chief in West.--Mr. Redington attended a conference of the research workers of the control-methods project in Denver on August 29 and 30, and following this went with Leo L. Laythe, leader of predatory-animal and rodent control for Colorado, to the southwestern part of the State, stopping at Alamosa to gather facts in relation to the proposed bird refuge in the San Luis Lake region. On his return to Denver he had conferences with officials at the State Capitol, including the Governor, the State engineer, the State game and fish commissioner, and members of the State board of land commissioners. He left on September 19 for Jackson Hole, Wyo., to meet other Federal officials and three members of the Senate Committee on Wild Life Resources to consider what should be done to perfect the program for the elk in that region. He will also visit the Bear River Migratory Bird Refuge, Utah, and perhaps make brief stops in other western States.

Associate Chief Making Western Tour.--After attending the conference of control-methods-research workers at Denver, Colo., late in August, Mr. Henderson inspected field offices of the Bureau in that State and in Wyoming, and on September 10 proceeded to O'Neill, Nebr., to attend the annual meeting of the Nebraska Division of the Izaak Walton League of America. On the 15th he addressed the annual meeting of the Western Association of State Game and Fish Commissioners at Santa Fe, N. Mex., and later in the month made a short tour of inspection in southwestern Idaho with Luther J. Goldman, leader of predatory-animal control in that State. On September 22 he met Mr. Redington and the Senate Committee on Wild Life Resources at Jackson, Wyo., after which he left with them for Ogden, Utah, to inspect progress at the Bear River Migratory Bird Refuge.

Speak at Game Commissioners' Meeting --The following members of the Bureau appeared on the program of the tenth annual meeting of the Western Association of State Game and Fish Commissioners held at Santa Fe, N. Mex., September 15 and 16: W. C. Henderson, who addressed the convention on the opening day; Shaler E. Aldous, district investigator of the Control-Methods Research Project, who presented a paper on "Success of Poison Campaigns"; John C. Gatlin, leader of predatory-animal and rodent control in New Mexico, who spoke on "Predators Detrimental to Bird Life"; and United States Game Protector B. R. Britton, of Socorro, N. Mex. G. E. Mushbach, superintendent of the Bear River Migratory Bird Refuge, Utah, also was in attendance.

Gives Radio Talk.--A radio talk by Mr. Redington on "Our Migrant Waterfowl" was given, in his absence, by E. A. Preble over Station WMAL, Washington, D. C., on September 26, under the auspices of Science Service.

Official Publications.--The following official publications of the Bureau were issued during the month:

"Amendment [prescribing open and close seasons on beaver and modifying area closed to mink trapping in fur district 2] to Regulations Respecting Game Animals, Land Fur-bearing Animals, Game Birds, Nongame Birds, and Nests and Eggs of Birds in Alaska," Supplement to Alaska Game Commission Circular 7, 2 p. Received September 10.

- "Migratory-Bird Treaty-Act Regulations and Text of Federal Laws Relating to Game and Birds," Service and Regulatory Announcements--B. S. 72, 18 p. Received September 13.
- "Game Laws for the Season 1930-31," by Frank L. Earnshaw and Frank G. Grimes. Farmers' Bulletin 1647-F, 46 p. Received September 25, 1930.
- "Hints on the Care of Otters." Bi-152 (mimeographed) (revised). 1 p. Received September 21, 1930.

Radio Talks for October.--The following Biological Survey talks have been scheduled in the Department's radio program for the month of October:

Field Mice (Primer for Town Farmers), October 1.

Fish-eating Birds (Uncle Sam's Naturalists), October 24.

BIOLOGICAL INVESTIGATIONS

Musk-Oxen Arrive at New York City.--E. A. Preble was in New York City on September 15 to assist L. J. Palmer, in charge of the Reindeer Experiment Station, in receiving and inspecting a shipment of 34 musk-oxen that arrived on the S.S. Bergensfjord of the Norwegian-American line. The animals came from Greenland, by way of Norway, and are to be taken to Fairbanks, Alaska, where they will be kept in a large inclosure for study and breeding purposes. The object of importing them is to attempt to reestablish the species on the ranges of northern Alaska, where they were formerly found in considerable numbers. The musk-oxen, which seem to be in excellent condition, were safely transferred from the ship to trucks and taken to the quarantine station at Athenia, N. J. After a stay of a fortnight or more they will go by express to Seattle, and thence by boat to Seward, Alaska, and complete the journey in the Territory by rail. During their detention and their further journeyings they will be under the care of Mr. Palmer. At Fairbanks the Bureau has prepared a large inclosure that will provide conditions similar to those on the natural wild range of musk-oxen, and will afford opportunity for studying the possibilities of domestication and breeding of the animals with a view to making greater economic use of the areas north of timberline. The new herd of musk-oxen was acquired at the direction of Congress, which last session, in response to a memorial from the Alaskan legislature, added \$40,000 to the appropriation of the Biological Survey for the specific purpose.

Status of Animal Life of Upper Mississippi River Refuge.--Vernon Bailey has returned from the Upper Mississippi Wild Life Refuge, where he has been studying the present condition of bird and mammal life throughout the refuge area. His long familiarity with the Mississippi Valley fauna enabled him to note the many changes that have occurred in the abundance of species during the past 50 years and to see the great possibilities for reestablishing native species that are now scarce or entirely absent. The buffalo, elk, and antelope are gone, but a few could be introduced and kept in well-fenced inclosures, reports Mr. Bailey. A few white-tailed deer and beaver remain, and the numbers of these species could be increased in suitable areas. Muskrats, minks, otters, skunks, raccoons, and red and gray foxes are more or less common and could be readily maintained in any abundance desired to build up a valuable fur supply for the region. Gray and fox squirrels and many other small mammals are found in abundance and afford material for interesting studies of habits, abundance, and control. Bird life is generally plentiful and comprises many attractive song birds and a remnant of some of our best game birds. Enough pinnated and ruffed grouse occur to form a nucleus for reestablishing these excellent native game birds, while the quail, or bobwhite, are still present in moderate numbers. The wild turkeys of the region were killed off long ago, but the species can be brought back, and the big native Canada geese can probably be induced to return to their old breeding grounds. Wood ducks are thriving in a most gratifying manner, and woodcock, bitterns, herons, hawks, and owls, and occasionally an eagle, give additional life to this beautiful wilderness region, which promises so much of interest and value for the future.

Sympathy is extended to Miss Anna McDiffett in the death of her niece, Mrs. Helen Boyles Hibble, who died at Washington, D. C., on September 2, 1930.

FOOD HABITS RESEARCH

Duck-disease Study Progresses.--E. R. Kalmbach reports some interesting developments in the duck-disease investigation at Klamath Lake, Oreg. The disease has appeared spontaneously in pens where the birds are kept under strictly sanitary conditions, and it has been produced experimentally by feeding the livers of diseased birds to healthy ones. In some respects these findings add to the difficulties of understanding the trouble, but they also indicate that progress is being made. Mr. Kalmbach had the benefit of a brief visit from Dr. J. E. Shillinger, of the Division of Fur Resources, and of a month's sojourn at the field laboratory of Dr. James F. Couch, who conducts chemical investigations in stock poisoning by plants in the Bureau of Animal Industry.

Begin Study of Gambel's Quail.--Herbert L. Stoddard and Wallace B. Grange during the month made another trip to Arizona to aid in initiating the study of Gambel's quail. The University of Arizona Fellow in charge of the project is David M. Gorsuch, and all conditions seem to point toward a successful investigation. After getting the work started Mr. Stoddard returned to Washington, but Mr. Grange remained in the field to assist in game-bird studies in mid-Western States.

Leaves for New Work in South.--After being for five years in charge of the Cooperative Quail Investigation in northern Florida and southern Georgia, and for more than a year engaged in studies of game birds in mid-western States, Mr. Stoddard terminated his services with the Bureau on September 16 and left for his new home near Thomasville, Ga. As reported in the April, 1930, SURVEY, he is to continue investigations of the quail on a large preserve there, 1,000 acres of which have been deeded to him by one of the sponsors of the Investigation. He will be available to serve the Bureau in an advisory capacity as cooperative agent when needed.

Studies Relation of Birds to White Pine Weevil.--J. Paul Miller has begun his work at the Northeast Forest Experiment Station at Amherst, Mass., on the relation of birds and other vertebrates through their food habits to the white pine weevil and the white pine blister rust. Full cooperation in the work by employees of the Blister Rust Investigation of the Bureau of Entomology and by the Forest Service has been assured.

To Aid in Study of Injurious Birds.--Johnson A. Neff late in September joined S. E. Piper at Sacramento, Calif., to participate in the study of injurious birds of the State and methods of control.

Starlings and Blackbirds Damage Corn.--Clarence Cottam recently made a brief investigation of reported damage to corn in Kent County, Md., by starlings and blackbirds. The numbers of birds present were not so great as in former years, and serious damage was observed in only one field.

Resignations.--Robert B. Burrowes completed his period of temporary service on September 19. He plans to take up post-graduate work in Yale University, where he will have an assistantship in addition to carrying on his studies for a doctor's degree.

A. Sidney Hyde terminated his service with the Bureau September 20, and will engage in teaching at Temple University, Philadelphia, Pa.

Civil Service Examinations.--September 9 was the closing date for receiving applications to take Civil Service examinations in both the junior and assistant grades for work in Food Habits Research. It is expected that these examinations will produce all the eligibles needed for some time to come for field and laboratory work in all the projects under this Division.

Appointment Extended.--The temporary appointment of Walter S. Greene has been extended for three months, during which time it is hoped that all the information in the Division on the bearing season of fruits attractive to birds can be completely organized.

Coots May Be Reduced in Numbers Legitimately.--Complaints from rice growers in western States that American coots have become so abundant as to prove seriously destructive to the rice crop in some sections, and from sportsmen that these birds compete with wild ducks for food in some localities, have recently led the Bureau to issue a statement to the press of the country regarding the coot. Requests had come to the Survey for permission to use extraordinary measures to reduce the numbers of coots, such as shooting out of season, removing protection entirely, and destroying them wholesale by various methods, including poisoning. The rice growers and sportsmen were reminded, however, that the coot is a game bird protected by the Migratory Bird Treaty and that it can be legitimately reduced in numbers during open seasons merely through shooting by hunters. "To avoid hunting the coot on the supposition that it is not good to eat is unjustifiable," the statement said. "Coots skinned and broiled are excellent eating (and skinning them is not difficult). In many localities where wild ducks are plentiful and are hunted by strangers, the lowly coot is prized for home consumption. If sportsmen will take the legal limit of coots a few times in the season, they will have something worth while from a gastronomic viewpoint, and they will also aid in reducing to proper proportions the numbers of this species, thus tending to eliminate complaints of damage. Allegations that the bird is not a clean feeder and that its flesh "tastes like the bottom of a mud hole" are largely unfounded. The coot feeds more upon the green foliage of aquatic plants than do any of the wild ducks, and it consumes in addition such delicacies as the tubers of wild celery and sago pondweed and the grain of wild rice. It is in fact a cleaner feeder than many other birds and mammals eaten by man."

FUR RESOURCES

Speaks at International Rabbit Breeders' Congress.--Mr. Ashbrook attended the sessions of the International Rabbit Breeders' Congress, in Leipzig, Germany, from August 23 to 27, and delivered a talk on "Rabbit Raising in the United States." Representatives from Belgium, France, Great Britain, Italy, the Netherlands, and Germany were also in attendance and read papers on various phases of the industry.

Returns from West.--Dr. J. E. Shillinger returned to Washington on September 12, after spending in the aggregate about a month at many points in the West. He addressed the meeting of the American Veterinary Medical Association held late in August in Los Angeles, Calif., and appeared on the program of the Wyoming State Fur Breeders' Association in session at Casper, Wyo., on August 22. Both these organizations expressed appreciation of the work of the Biological Survey along the line of research on fur animals. While in Portland, Oreg., Doctor Shillinger investigated the activity of the Angora rabbit breeders in inducing woolen mills to utilize their product. One mill has produced a form of Angora rabbit-wool yarn of a superior quality, and the mill owners are of the opinion that this industry may well be developed. September 9 and 10 were spent by Doctor Shillinger in Minneapolis, Minn.,

noting the progress made in the study of diseases of fur animals, carried on there cooperatively with the University of Minnesota. The system of vaccinating silver foxes against paratyphoid and encephalitis has proved to be practicable on experimental animals under ranch conditions. Plans are being considered for putting the method of producing this vaccine in the hands of commercial biological houses, so that it may be made available for fur farmers.

Veterinarians Visit Rabbit Experiment Station.---Members of the American Veterinary Medical Association and their families visited the U. S. Rabbit Experiment Station, at Fontana, Calif., on August 30. A number of local citizens assisted the station staff in entertaining them. The disease situation among rabbits in California has been serious this year. The extensive losses suffered are indicated by the greatly reduced supply of rabbit meat on the local markets. Special efforts are being made to expedite the investigations of certain new diseases that have recently made their appearance.

Outbreak of Disease on Mink Farm.---Dr. Karl B. Hanson, director of the Fur-Animal Experiment Station, Saratoga Springs, N. Y., was called to a mink farm at Greenland, N. H., on August 26, to investigate and aid in controlling an outbreak of disease among the minks.

Badger Investigations.---Doctor Hanson reports that the first year's experience with badgers at the Fur-Animal Experiment Station has demonstrated that the propagation of these animals in captivity does not give promise of being a profitable undertaking on a pelt-production basis.

PREDATORY-ANIMAL AND RODENT CONTROL

Mexico Interested in Bait-Mixing Station.---News of the Bureau's rodent-poison bait-mixing station at McCammon, Idaho, has traveled far. A letter was recently received from the Department of Investigation, Federal Office for Agricultural Defence, San Jacinto, D. F., Mexico, stating that the director had read about this mixing plant in the 1930 Yearbook of Agriculture and was very much interested. Cotton rats have become destructive in parts of the States of Michoacan and Jalisco, especially on an area of 274,000 acres in the neighborhood of Lake Chapala. In order to combat the pests, the officials are desirous of installing a similar plant in Mexico, and request detailed information on the proper procedure and machinery. They also asked for a supply of the poison-bait for use until the plant can be established.

Research Workers Confer in Denver.---A conference of the members of the Control Methods Research Section was held August 29 to September 1 at Denver, Colo. The Chief, the Associate Chief, Mr. Young, and W. E. Crouch attended the meeting and took part in the discussions of the various problems connected with the research program. Leaders D. A. Gilchrist, of Arizona, Ira N. Gabrielson, of Oregon, and L. L. Laythe, of Colorado, were also present and discussed field procedure in connection with improved control practices. This was the second annual meeting of this group of workers.

Reports Wolf Loses in Battle with Caribou.---H. W. Terhune, executive officer and secretary of the Alaska Game Commission, sent in the following interesting clipping from the August 12 issue of the Fairbanks News-Miner:

"Victorious in combat with his enemy the wolf, but unable to free himself from the dead body of his foe, a big bull caribou was seen a few days ago on Birch Creek in the

Circle country walking slowly along bowed down under the wolf's weight. The wolf apparently had been impaled upon the horns of the caribou and mortally wounded but the caribou was unable to free himself from his burden. * * * one of those who saw the caribou said the weight it carried was too great to permit it to run. Every time it passed a tree it would try to rub the wolf from its horn. It was accompanied by another bull, who would run ahead a few paces and then wait for its slower companion."

Arizona District Makes Good Use of Lantern Slides.--D. A. Gilchrist, leader of predatory-animal and rodent control in Arizona, reports that 70 colored lantern slides illustrating various phases of his work were shown by automatic projector at the Northern Arizona Fair, at Prescott, July 2 to 5. A continuous projector was also used in showing a motion picture of Arizona mountain-lion, bear, and bobcat hunting with hounds. After the fair the machines and pictures were on a week's display in a window of a store and thousands of persons stopped to see them; local newspaper comment on the exhibit was complimentary.

Gives Radio Addresses on Alaska.--R. K. Stewart, who in July was transferred from Alaska to Wyoming to assist in the Bureau operations in that State, recently gave two addresses on the subject of "Alaska" over Station KQW, San Jose, Calif. He discussed many interesting things about the Territory and related some of his experiences in conducting official work in predatory-animal control during his 3-year assignment there.

Out Where the West Begins.--R. Scott Zimmerman, leader of rodent control in Utah, becomes eloquent in his July news-letter and offers the following:

"Folks tired of routine business of life in the present strenuous urge of our nervous civilization long for an opportunity to get out of doors and seek a quiet retreat in the wooded places where nature rules and wild life lives. 'But where shall we go,' says the tenderfoot of the metropolis, 'to find the West with virgin wildwood and the diversification where wild life abounds? Alas, that day has forever gone.' * * *

"It so happens that civilization with its snappy ways and bright lights has lured the wilderness folk until Wild West and Subtle East are drawn even closer together. A farmer of Roy, Utah, interested in learning the whereabouts of some stray stock, strolled down through his apple orchard. As he passed beneath an overhanging branch something soft and warm brushed his swarthy cheek. An investigating eye met the green glare of a mountain lion quietly resting on a limb, while its tail, twitching nervously, brushed backward and forward. The lion was taken into custody.

"Later during the week a rural citizen of North Ogden, Utah, while going to the pasture to milk, met face to face with a mountain lion as he turned down the lane. He dropped his milk pails and fled for help, and the lion fled too.

"A poultry farmer of Utah was herding his flock of turkeys over the hillside. Though hard pressed the flock refused to be driven past a certain spot. Examination revealed two extra large rattlers, coiled at attention. A forked stick and two quart fruit jars were pressed into service, one for a reptile with eleven rattles, and the other holding safely its companion with nineteen rattles.

"August 3 of this summer brought an unusual yet extremely interesting guest to one of Salt Lake's finest hotels. Shortly after dark a porcupine in full dress sauntered down one of the city's crowded thoroughfares and entered the revolving doors of the Hotel Utah. This stuck-up gentleman of the tall pines was seeking diversion.

"Yes, Mr. Nature Lover, the West is still West."

Wolves and Bears Prey on Reindeer.--Leader H. H. Gubser, of the Alaska District, states that recent investigation in the areas supporting large numbers of reindeer confirms reports of considerable damage to the animals by wolves. There seems to be no great number of wolves, but the few that do occur are inflicting serious losses. Reindeer owners are also concerned over the damage being done to their herds by black bears. They have asked for help with the bear situation, and a petition is now being prepared by the herd owners requesting definite assistance. Mr. Gubser reports that the coyote infestation is spreading rather rapidly into new areas. These animals have been seen as far down the Yukon as Marshall, as far north as the Kobuk River, and at the mouth of Stony Creek on the Kuskokwim. Prior to last winter none had been seen or heard of farther north than the mouth of the Koyukuk.

Individual Rats May Cause Heavy Damage.--H. H. Haecker, assistant leader of rodent control in South Dakota, recently reported that a merchant of Alexandria, S. Dak., had been interested in the control of rats in his store for some time, and had employed such methods as he could devise and learn of from others, obtaining fairly good results. Nearly all the rats that inhabited his store had been caught, but one old rat, which he could recognize each time he saw it, was too wise. So far as he knew this was the only rat left, as others were killed as fast as they came into the store. He estimated that the rat destroyed \$300 to \$400 worth of goods there during its lifetime. On questioning, it was found that these figures were obtained by counting over numerous items that the rat had ruined and giving actual costs, in a way that was unusual in such reports. The merchant made the statement that almost any man in the town could afford to pay the bill for a month's rodent-control work, as he would make money by it.

Columbia Ground Squirrels a Menace at Game Farm.--The destruction of the nests and young of ground-nesting birds by ground squirrels was recently reported by T. B. Murray, leader of rodent control in Idaho. The State game warden reports that Columbia ground squirrels have become a distinct menace to the artificial propagation of game birds at the State game farm at Lapwai, and that about 2,500 young birds were killed by these rodents last spring. The farm is so situated that the rodents migrate to it from adjacent vacant Indian lands, reinfesting the inclosures every few days. Control measures for the present season were effected by use of calcium cyanide. An attempt will be made next year to cooperate in the control of the ground squirrels on Indian lands within a radius of two miles of the game farm, which should relieve the situation and save the game birds. Mr. Murray points out that many sportsmen had criticized the rodent-control work of the Bureau in the past, thinking that the poisoning operations seriously menaced game birds. Since this heavy loss in young birds has been reported, however, many are convinced that ground-squirrel control operations are beneficial to such birds.

Rodent Specialists Visit Europe.--Ernest M. Mills, of the Eastern Rodent-Control District, recently returned from a tour of Europe. He took advantage of the opportunity afforded of studying rodent-control activities in several of the countries visited. Holger G. Hansen, of the California rodent-control district, also returned from a vacation in Europe recently. Mr. Hansen spent some time in Denmark, where he conferred with local authorities on rat-control measures. He visited the Washington office on his return to California.

LAND ACQUISITION

Inspects Proposed Refuge Sites.--Mr. Dieffenbach is on an extended field tour in Kansas, Colorado, Utah, Nevada, California, and Texas negotiating for land purchases and making inspections of proposed refuge areas.

Returns from Field.--Arthur A. Riemer has recently returned from a visit to the Cheyenne Bottoms project at Great Bend, Kans., the unit being surveyed by Charles S. Cook in northern Minnesota, and the Upper Mississippi River Wild Life and Fish Refuge. The topographic survey of the proposed refuge in northern Minnesota is nearly completed, and Mr. Cook will soon return to Washington.

Progress of Field Parties.--Carey H. Bennett's party has completed work in Nebraska and is at present examining areas in Wyoming; George D. Chittick's group has completed the examination of several proposed units in Maine and New Hampshire and is now working in Massachusetts; Rudolph O. Gustafson's party after concluding the work in Vermont proceeded to New York; and Albert J. Rissman's party is continuing the examination of areas in North Dakota.

GAME AND BIRD CONSERVATION

Investigates Migratory-Bird Conditions in South Carolina.--Talbot Denmead spent several days beginning August 21 investigating migratory-bird conditions on a large number of abandoned rice plantations on the Combahee River, South Carolina. He saw about 2,000 wood ducks, the only species of duck noted, and many other interesting migratory birds, including Florida gallinules, boat-tailed grackles, coots, loggerhead shrikes, anhingas, and wood ibises, and hundreds of herons of various species. All the birds appeared tame, and there was no evidence of game-law violations in the section visited.

Confer with Protectors.--Mr. Denmead and W. R. Dillon, in Ocean City, Md., on September 19 and 20, conferred with United States Game Protectors O. D. Steele and Albert Stadlmeir relative to migratory-bird conditions and law enforcement in their respective districts with particular reference to plans for their fall and winter work. Mr. Denmead, while on an auto trip 20 miles down the beach, saw large numbers of sanderlings, turnstones, and black-bellied plovers, and flocks of scoters, cormorants, and other aquatic birds in migration, as well as of black ducks.

Visits Washington Office.--D. H. Madsen, formerly superintendent of the Bear River Migratory Bird Refuge in Utah, was a visitor at offices of the Bureau during the first week in September.

Chigger Bites Cause Infection.--United States Game Protector L. J. Merovka, of Memphis, Tenn., was confined to a hospital for about ten days during the latter part of August as a result of an infection caused by chigger bites. He was able to return to duty on August 29.

Game Protector in Washington.--United States Game Protector Kenneth F. Roahen, of Peoria, Ill., was in Washington for a few days during the latter part of the month for conferences in connection with his fall and winter game-law-enforcement work in the Illinois River section.

G. E. Mushbach Succeeds D. H. Madsen at Bear River.—United States Game Protector George E. Mushbach was appointed, effective September 16, 1930, superintendent of the Bear River Migratory Bird Refuge to fill the position made vacant by the resignation of David H. Madsen on August 15 to enter the National Park Service. Mr. Mushbach has been in the service of the Biological Survey since November, 1919, as game protector with headquarters at Billings, Mont., and has long been interested in game-conservation work, having been formerly connected with the Montana Fish and Game Commission. In his game-protection activities he has on numerous occasions been assigned to difficult investigations in connection with bird refuges and big-game preserves. His headquarters will be at Ogden, Utah.

Storm Exposes Birds to Law Breakers.—United States Game Protector Albert Stadlmeir, of Pleasantville, N. J., reports that from August 21 to 23 a severe northeast storm lashed the New Jersey coast, working havoc among the shorebirds and other wild fowl. Ordinarily these birds find refuge on the islands and meadows bordering the coasts and bays, but heavy winds caused the tides to rise and flood the meadows, driving out the birds. At such times the area near the boulevards crossing the meadows and connecting Atlantic City with the mainland offer them a safe haven, but also afford opportunity for persons so inclined to slaughter them wantonly, as they lie almost helpless in the grass. Mr. Stadlmeir stated that there were hundreds of clapper rails along the boulevards during the recent storm, and that people came from the surrounding country to gather them up with crab nets, as had evidently been the custom for years. Mr. Stadlmeir and the State game warden, however, enlisted the cooperation of the crew of a State patrol boat which lay at Atlantic City at the time, and with three automobiles kept up a constant patrol of the highways from Absecon to Brigantine. News of the presence of the wardens traveled fast, especially after one man had been apprehended and fined \$20 and costs, and most of the persons who came to get rails went home without them. Although the wardens undoubtedly saved hundreds of rails and shorebirds, many of the birds perished from exhaustion, and others were killed by passing automobiles as they attempted to cross the highways or were driven across by the wind.

Haying and Grazing Permitted at Big Lake during Drought.—Owing to the severe drought, the farmers adjacent to Big Lake Bird Reservation, through Protector S. B. Crossley and the local county agent, requested permission to graze their livestock and to cut hay within the boundaries of the reservation. This was granted, and for the first time haying operations were conducted on the area. It has proved a boon to the farmers and has not in any way damaged the reservation. At the present time there is no water in the lake bed.

Best Wishes are extended to United States Game Protector L. J. Merovka and Miss Earlyne Brannan, both of Memphis, Tenn., who were married September 6, at Lambert, Miss.

New Office at National Bison Range Occupied.—Protector F. H. Rose, of the National Bison Range, Mont., has moved into the new office building, which was built following the fire on May 1 that destroyed the one formerly used.

Visitors at Sullys Hill.—Protector Wesley D. Parker of Sullys Hill Game Preserve, N. Dak., states that 3,995 visitors in 851 automobiles visited the preserve during August. On one Sunday there were 687 visitors and 131 cars there.

Hunting Licenses in 1928-29 Decrease Slightly.--More than 6,425,000 hunting licenses for taking wild game were issued to sportsmen throughout the United States, including Alaska, in the season 1928-29. The revenue to the States amounted to more than \$9,390,000. This sum includes receipts from combined hunting and fishing licenses but not from licenses issued for fishing only. Detailed figures for the season just compiled show a slight decrease in the number of licenses issued and a small increase in the money receipts as compared with the preceding three years. In the 1925-26 season, 5,332,375 hunters paid for their licenses a total of \$7,130,102, while in the 1926-27 season 5,989,795 hunting licenses were issued, bringing a revenue of \$8,187,223 to the States. In 1927-28, 6,462,555 licenses were issued, and the fees paid were \$9,338,173. New York State, with 677,137 licenses and \$703,047 in money returns, and Pennsylvania, with 517,793 licenses and a revenue of \$998,834, head the 1928-29 list. Only 17 States licensed more than 1,000 nonresidents or aliens, New York leading with 5,409, Maine being second with 3,864, and Massachusetts third with 3,462.

Sympathy is extended to St. Clair Lewark in the death of his mother, who passed away at his home in Poplar Branch, N. C., on September 7. Mr. Lewark is serving temporarily as United States game protector on Currituck Sound.

Treaty-Act Cases Terminated--Reports Received during August

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> | <u>Fine</u> |
|----------------------------|--------------|--------------|--|---------------------------------|
| Hoffman, Odom** | 1 | Alabama | Possessing mourning doves in close season | \$25 |
| Hoffman, Odom**, Watson** | 5 | " | Hunting and killing mourning doves in close season | \$10 each |
| Holmes, Perry, Wilson* | 2 | Missouri | Killing ducks in close season | \$10 each |
| Johnson | 3 | Louisiana | Selling ducks | 30 days in jail each; suspended |
| Perry, McQuary**, Wilson** | 1 | Missouri | Possessing ducks in storage in close season | \$10 |
| Shaver | 1 | Minnesota | Possessing ducks in storage in close season | \$25 |
| Shaver, Vogel* | 1 | " | Offering for sale and selling ducks | \$25 |

Treaty-Act Cases Reported during August

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> |
|-------------------------------|--------------|--------------|--|
| Roahen, Fidler*, Harris, Jr.* | 3 | Illinois | Killing and possessing ducks in close season |
| Shaver, Rogalla* | 1 | Minnesota | Selling ducks |

* U. S. Deputy game warden.

** Deputy State game warden.

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U. S. Department of Agriculture

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Washington, D. C., October 31, 1930

No. 10

GENERAL NOTES

Chief and Associate Chief Back from Western Tour.--Mr. Redington returned to Washington on October 17 from a month's tour in Western States. In Chicago he met Senator Frederic C. Walcott, chairman of the Senate Committee on Wild Life Resources; George D. Pratt, president of the American Forestry Association; and J. R. Carlisle, well-known naturalist of Norfolk, Conn., and with these men went to Livingston, Mont., and spent a day in company with Forest Service and National Park Service officials in sizing up the winter range of the so-called northern Yellowstone elk herd. Many antelope and some buffalo and elk were seen during the day, as well as two trumpeter swans on a little lake near Lamar River in the park. The buffalo herd in the Yellowstone now numbers approximately 1,000 head. Inspection was made of the museum at Yellowstone Park on September 22, and then the party went by automobile to Moran, Wyo., where they staid four days. Many trips were taken afield to learn at first hand of the range used by the Jackson Hole elk herd. Quite a number of the elk were seen, and Senator Walcott was able to obtain some unusually good moving pictures of a number of trumpeter swans on a little lake north of Jackson Lake.

Senators Peter Norbeck, of South Dakota, and Key Pittman, of Nevada, members of the Senate Committee on Wild Life Resources, joined the party here, as also did Mr. Henderson and O. J. Murie; the Governor of Wyoming; Robert D. Carey, ex-Governor of the State; John T. Scott, president of the Wyoming State Game and Fish Commission; Bruce Nowlin, State Game and Fish Commissioner; and D. H. Madsen, of the National Park Service. An opportunity was given here to understand fully the situation in regard to the elk and the future needs of this herd.

From Jackson Hole the party traveled by various ways to Ogden, Utah, and spent two days on the Bear River Marshes to look over developments there. "It is really an inspiration," says Mr. Redington, "actually to see the first new unit of 6,000 acres completed with the water turned on it. Migratory birds were using it by thousands. Senator Walcott and others of the party were able to take their limit of ducks in a few hours on the opening day, October 1. It is expected that all the five units of this project will have been completed by July 1 next, the dikes then inclosing an area of 25,000 acres of fresh water. Good news was obtained to the effect that the so-called duck sickness has not appeared to any appreciable extent this year, probably because of the fact that pure water has been available to the myriads of waterfowl that use the new fresh-water area." Opportunity was afforded also to discuss administrative and engineering problems with G. E. Mushbach, superintendent of the Bear River Refuge, and L. M. Winsor, irrigation engineer, and to confer with George E. Holman, leader of predatory-animal control in Utah.

Mr. Redington and Mr. Henderson then traveled to California, where ample opportunity was given to discuss migratory-bird problems with prominent conservationists of the State and with the executive officer of the State Fish and Game Commission. They visited both San Francisco and Los Angeles, Mr. Redington traveling on a 32-passenger plane from San Francisco to Los Angeles and return. In Berkeley they visited the Museum of Vertebrate Zoology and discussed with members of the museum matters in reference to investigations to

be made of predatory-animal control affairs this fall. A day was spent in Sacramento where conferences were held with members of the State Department of Agriculture, Leaders Charles G. Poole and Joseph Keyes, of the Division of Predatory-Animal and Rodent Control, and with Stanley E. Piper and Johnson A. Neff, of the Division of Food Habits Research, who are making an intensive study of the damage done by certain migratory birds to agricultural crops.

Mr. Redington left Sacramento by airplane for Salt Lake City, traveling over the Sierra Nevada by moonlight, but was greatly delayed by fog, near Elko, Nev. After a brief visit with R. Scott Zimmerman, leader of rodent control in Utah, he conferred at Denver with F. E. Garlough and J. C. Ward, of the Control-Methods Research Laboratory. On his return journey to Washington, at Great Bend, Kans., Mr. Redington addressed the annual meeting of the State division of the Izaak Walton League of America, and discussed with members of the Bureau on the ground the survey and appraisal plans in connection with the acquisition of the Cheyenne Bottoms as a Federal migratory waterfowl refuge.

Mr. Henderson, on his way east, conferred with Bureau officials at Portland, Oreg., at the National Bison Range, Missoula, Mont., and at Minneapolis, Minn., arriving in Washington on October 18.

Later in the month, with Mr. Henderson and other members of the Survey, Mr. Redington went to Salem, Mass., and addressed the annual meeting of the American Ornithologists' Union. He spent a day in Norfolk, Conn., as the guest of Senator Frederic C. Walcott, and in New York had a conference with H. E. Anthony, curator of mammals of the American Museum of Natural History and chairman of the committee on predatory animals of the American Society of Mammalogists.

Survey Represented at A. O. U. Meeting.--Among the papers presented at the 48th stated meeting of the American Ornithologists' Union, held at the Peabody Museum, Salem, Mass., October 21-24, were the following by members of the Biological Survey: "The Bird Work of the U. S. Biological Survey," by Paul G. Redington; "The Origin of an Avifauna," by O. L. Austin, Jr.; "Bird Banding: The First Decade under the Biological Survey," by F. C. Lincoln; and "Waterfowl on the Potomac River," by Dr. H. C. Oberholser. Other members of the Survey present were W. C. Henderson, W. L. McAtee, Dr. T. S. Palmer, Dr. A. K. Fisher, E. A. Preble, A. H. Howell, and C. H. M. Barrett. Dr. Joseph Grinnell, of California, was re-elected president of the Union, and Dr. T. S. Palmer and W. L. McAtee were re-elected secretary and treasurer, respectively. A. H. Howell was honored by being made a fellow of the Union, and Lee S. Crandall, inspector of foreign bird and mammal importations at the port of New York, was elected a member. A paper, "In Memoriam: Henry Wetherbee Henshaw, 1850-1930," by Dr. Edward W. Nelson, was read by title. The 1931 meeting of the Union will be held in Detroit, Mich.

Official Publications.--The following official publications of the Bureau were issued during the month:

"Outlines for Studies of Mammalian Life Histories," by Dr. Walter P. Taylor. Miscellaneous Publication 86, 12 p. Received October 22.

"Laws and Regulations for the Administration of Federal Wild-Life Refuges," Service and Regulatory Announcement--B. S. 73, 6 p. Received October 22.

"Rabbit Skins for Fur," Farmers' Bulletin 1519 (revised), 14 p., illus. Received October 23.

"Directory of Officials and Organizations Concerned with the Protection of Birds and Game: 1930," compiled by Talbott Denmead and Frank G. Grimes. Miscellaneous Publication 92 13 p. Received October 30.

RADIO TALKS.--The following Biological Survey talks have been scheduled for November in the Department's radio program:

"Care of Pets" (Primer for Town Farmers). November 18.

"Winter Feeding of Upland Game Birds" (Uncle Sam's naturalist series), November 21.

Committee to Study Diseases of Wild Life.--An interdepartmental committee has been formed for the purpose of developing more effective measures for the control of diseases of wild life. At present the committee is composed of the following members: Dr. M. C. Hall, of the Zoological Division of the Bureau of Animal Industry, chairman; Dr. J. E. Shillinger, of the Division of Fur Resources, Bureau of Biological Survey, secretary; C. E. Rachford, in charge of the Branch of Grazing of the Forest Service; and Dr. H. C. Bryant, assistant director of the National Park Service of the Department of the Interior. Invitations have been sent also to the Chief of the Bureau of Entomology and to the Commissioner of the Bureau of Fisheries of the Department of Commerce to nominate members from their respective organizations to be represented. It is a well-known fact that many diseases and parasites are intertransmissible between domestic livestock and wild life. It is also recognized that certain diseases are passed from animal to animal through the agency of insect vectors, and that various forms of aquatic life serve as intermediate hosts to some very destructive species of parasites. From the available information at hand a general survey will be made of diseases in wild life to determine in what species and in what places problems exist, and make plans for control.

Death of Carlos Avery.--In the sudden death, on October 5, of Carlos Avery, of New York, president of the American Game Protective Association, the Bureau loses a valued cooperator. Mr. Avery was also secretary of the National Game Conference, secretary and former president of the American Fisheries Society, vice-chairman and treasurer of the National Committee on Wild Life Legislation, member of the International Association of Game, Fish, and Conservation Commissioners, former member of the Advisory Board under the migratory bird treaty act, and formerly for 14 years game and fish commissioner of Minnesota. He was interested not only in organized work for game protection but was himself a recognized naturalist and conservationist. The funeral services were conducted at Hutchinson, Minn., on October 9. Sympathy is extended to Mrs. Avery and family in their bereavement. Mr. Avery's work as president of the American Game Protective Association will be taken up at once by William B. Greeley, prominent conservationist of New York City and member of the board of directors, who was chosen by the board to act until the next election.

BIOLOGICAL INVESTIGATIONS

Musk-Oxen Leave Quarantine and Start on Journey to Alaska.--Doctor Bell went to the quarantine station of the Bureau of Animal Industry, at Athenia, N. J., on October 18, and met L. J. Palmer and Charles H. Rouse, who have been taking care of the herd of 34 musk-oxen during their period of quarantine and who are now accompanying the shipment on the two weeks' trip to Alaska. They will also have charge of the experimental investigations to be conducted after they reach the Bureau's experiment station at College. Dr. James Fleming, in charge of the Bureau of Animal Industry Quarantine Station, has extended every possible courtesy and help, and reports that the animals have been in excellent health during the entire quarantine period, no trace of disease being in evidence.

Half the animals are young of the year, while the other half are a year old or more. When they reached New York from Greenland their diet was changed from the native hay, on which they had been fed during the trip to New York, to alfalfa hay, on which they fed readily and continued to thrive. During the entire period the animals have been confined in crates, which are roomy and strong, so that they are entirely comfortable, being able to

stand up, turn around, or lie down at will. They were loaded on two steel express cars (17 animals to a car), and on October 19 they were attached to a passenger train and taken to Jersey City, where they started on the first lap of their trip, to Chicago. Doctor Bell accompanied the shipment as far as Jersey City. The animals appeared to be traveling comfortably, taking food and water readily as usual, and showing no undue excitement. The express and railroad company officials are showing an active interest in the shipment and have made thorough preparations for their comfort and safety. Reaching Seattle on October 24 they were transferred to the SS Yukon, for the seven days' journey to Seward, Alaska, from which port they will go via the Alaska Railroad to the Reindeer Experiment Station at College.

To Study Alaskan Range Conditions.--Charles H. Rouse was transferred from the Forest Service to the Bureau on September 16 to assist in the study of range conditions in Alaska, with special reference to the needs of the musk-oxen. His headquarters will be at the Reindeer Experiment Station, at College, Alaska.

Field Studies Cover Wide Range.--The report of O. J. Murie for the quarter ended September 30 indicates that his work has included a variety of subjects. Much of his time was devoted to studies of the northern elk herd on the summer range. He spent a short time in the Teton National Park investigating the animal life, with interesting results, as this region is practically unknown. He also conducted studies of the food habits of the coyote, and attended a conference of the Senate Committee on Wild Life Resources. Experiments carried on with the help of his brother, Dr. Adolph Murie, to determine the homing instinct of mice, while not extensive, disclosed a remarkable ability of the local form of the white-footed mouse to return to its home grounds. Mr. Murie plans some special work on the elk during the fall hunting season.

Visits Bird-banding Stations.--F. C. Lincoln during the month visited a number of representative bird-banding stations in Pennsylvania, New Jersey, New York, Connecticut, and Massachusetts. The contacts thus made should be productive of important results.

Studies Relation of Rodents to Grazing.--S. B. Locke, associate biologist stationed at the Intermountain Forest Experiment Station at Ogden, Utah, during September and early in October conducted investigations of the relation of rodents to forest and range conditions at points in Idaho, Wyoming, and Utah.

Progress of Biological Studies in the Southeast.--Thos. D. Burleigh, stationed at the Appalachian Forest Experiment Station, Asheville, N. C., spent most of August and September in the vicinity of Bent Creek, near Asheville, working on the fauna and flora of the region. He read a paper on the general subject of forest biology at the annual meeting of the North Carolina Forestry Association at North Wilkesboro, on September 9, and gave a talk on forest biology to students of forestry at the University of Georgia, at Athens, on September 23.

FOOD HABITS RESEARCH

Examines Water Areas in Pennsylvania.--At the request of the State Board of Game Commissioners of Pennsylvania, Charles C. Sperry during the month examined certain bodies of water in the northwestern part of that State and made recommendations for the improvement of feeding conditions for the wild fowl.

Completes Field Work in Minnesota.--Neil Hotchkiss has completed the field investigations of the food resources for wild fowl in Minnesota and has returned to Washington. Percy Jones, who was assisting Mr. Hotchkiss, terminated his connection with the Bureau, effective September 30. The field outfit has been stored at Madison, Wis., with the expectation of conducting similar work in that State.

Examines Proposed Refuge Site.--A. C. Martin recently made an inspection of an island area in Carteret County, N. C., to determine its suitability for migratory-bird refuge purposes.

Attends Meeting of Game Depredations Committee.--S. E. Piper attended a meeting of the Game Depredations Committee of the California State Chamber of Commerce, on September 13, at which both State and Federal policies relating to injurious birds and other animals and their control were discussed.

Progress of Quail Report.--Proof is being read of the final report on the Cooperative Quail Investigation, and it is hoped to have the work published within the next few months.

FUR RESOURCES

Returns from Europe.--Mr. Ashbrook, who served as commissioner general representing the United States at the International Fur-Trade Exposition at Leipzig, Germany, from May 31 to September 30, arrived in Washington October 20 after spending 5 months in Europe. In addition to attending the Fur-Trade Exposition, the World Fur Congress, and the International Rabbit Conference, all at Leipzig, he visited other places in Germany and in Denmark, Sweden, Norway, Finland, Estonia, Latvia, Lithuania, Danzig Free State, Czechoslovakia, Austria, Hungary, Switzerland, France, Holland, Belgium, and England to note conditions in the production of fur animals. Fur farming continues to develop, says Mr. Ashbrook, in most of the European countries in spite of present economic conditions. The developments are slow and not so extensive as in the United States, but in a few years Norway, Germany, and Sweden will be sending considerable numbers of skins to the raw-fur markets of Europe.

Attends Fox Breeders' Sessions.--Dr. Karl B. Hanson of the Fur-Animal Experiment Station, Saratoga Springs, N. Y., attended the sessions of the summer school of the American and the New York Fox Breeders' Associations, at Amherst, Mass., October 8 and 9. On October 10 he investigated an outbreak of disease on a large fur farm at Greenland, N. H.

Plan Muskrat Investigations.--The Biological Survey, the Maryland State Conservation Department, and the Maryland State Experiment Station have entered into a cooperative agreement for an intensive study of muskrats. Living quarters, marshland, and other facilities have been made available for this project on the eastern peninsula of Maryland, and plans are being made for designating the personnel to conduct the investigations.

Resignation.--Mrs. Lillian Morris, agent, who has been doing technical work in the laboratories of the University of Minnesota in connection with the study of diseases of fur animals, resigned effective October 15. It is not planned to appoint another technician to fill the vacancy, but to employ clerical help to aid in assembling the information now on hand on diseases of fur animals preliminary to publication.

Russian Visits Fur-Animal Experiment Station.--A representative of the Kamchatka Fur Company, of Russia, spent a few days during the early part of October at the Fur Animal Experiment Station, at Saratoga Springs, N. Y., gathering information on fur farming.

Congratulations.--Mr. and Mrs. Thurlow Woodcock, of Saratoga Springs, N. Y., are receiving congratulations on the birth of a son, Allyn, on October 10. Mr. Woodcock is caretaker at the Fur-Animal Experiment Station.

PREDATORY-ANIMAL AND RODENT CONTROL

Visits Field Offices.--After the conference of the Control-Methods Research workers, at Denver, Colo., Mr. Young visited the headquarters of the Utah, Oregon, Nevada, California, Arizona, and New Mexico Districts and conferred with the field officials. He will return to Washington early in November.

Reorganization of Districts.--For the purpose of obtaining closer contacts and a more efficient organization Mr. Redington has announced that on January 1, 1931, the several predatory-animal and rodent control districts will be grouped into four regions with a supervisor in charge of each. The supervisors and their headquarters will be as follows: Region No. 1 (including all States east of the Mississippi River and Louisiana), James Silver, Washington, D. C.; Region No. 2 (including Montana, Wyoming, South Dakota, Colorado, and Utah), Leo L. Laythe, Denver, Colo.; Region No. 3 (including Washington, Oregon, Idaho, Nevada, and California), Ira N. Gabrielson, Portland, Oreg.; and Region No. 4 (including Arizona, New Mexico, Oklahoma, Arkansas, and Texas), D. A. Gilchrist, Phoenix, Ariz. Leo L. Laythe, leader of predatory-animal and rodent control in the Colorado District, is now on temporary assignment in the Washington office in connection with the new plan of reorganization. The other supervisors will be given similar assignments before assuming their new duties.

Pocket-Gopher-Control Work Effective.--John C. Gatlin, leader of predatory-animal and rodent control in New Mexico, reports that the board of directors of the Elephant Butte Irrigation District in the Mesilla Valley has recently appropriated \$4,000 for pocket-gopher-control work during the coming winter. In view of present economic conditions, this continued cooperation encourages Mr. Gatlin to feel that his work in the past has been productive of satisfactory results.

Mountain Lions Get into "Talkies."--If you should happen to visit a mountain lion in its private boudoir one of these days, you might expect to see the whole family brushing their silky coats and putting on hair dressing in anticipation of breaking into Hollywood and the cinema world. During the latter part of September Raymond Evans, chief of the Office of Motion Pictures of the Department, with a cameraman, spent 10 days with George E. Holman, leader of predatory-animal control in Utah, and filmed what Mr. Holman claims will be one of the Department's outstanding educational pictures, starring Mr. and Mrs. Felis Cougar (alias Mountain Lion, Puma, Panther, or Catamount), supported by a cast of well-known denizens of the forest and a number of dogs, cattle, and sheep. Not to be outdone by the Utah mountain lions, some of the select mountain lions of Arizona also broke into the movies, even going the Utah lions "one better" by registering their voices, as well as their actions, with the "talkies." This film is now being shown as a newsreel. These stars are supported by D. A. Gilchrist, leader of predatory-animal and rodent control and his Arizona hunters.

Reinstatement.--Eddie B. Ligon, previously connected with the predatory-animal control operations in South Dakota and Texas, was reinstated as assistant leader in the latter district, effective September 18.

Record Mountain-Lion Catch.--Hunter Roy Spangler, assigned to work in the Green Horn Mountain district of Colorado, where mountain lions were reported to be killing sheep and deer, made a record catch during the first week of September, according to Leo L. Laythe, leader of predatory-animal and rodent control for that State. Mr. Spangler captured four mountain lions in four consecutive days, and the depredations on sheep and deer ceased. Thirty-five sheep and several deer carcasses were found.

The Call of the Wild has evidently been answered by several dogs in the White Mountain region of Arizona. Assistant Leader C. E. Gillham and Hunter William Casto reported finding 20 calves killed by dogs in a square mile of territory.

Wyoming Hunters Hold Conference.--Adolph S. Hamm, leader of predatory-animal and rodent control in Wyoming, reports that the Wyoming hunters held an interesting and instructive conference at Douglas from September 13 to 16. F. E. Garlough, in charge of Control-Methods Research, gave an illustrated talk on the action of poison. This is the second annual conference of hunters held in this State.

Arizona Bears Increase.--Bears are reported to be more plentiful in Arizona this year than they have been for many years past, according to D. A. Gilchrist, leader of predatory-animal and rodent control in that State. Many persons report seeing them in the Mazatzal, Sierra Ancha, and White Mountains, while in the Blue Range and Mogollon Rim the trails are reported dusty from the heavy bear traffic. During September bears were so numerous in the Sierra Ancha Range that Hunter Jim Jones was obliged to discontinue mountain-lion hunting in that region. Every day that his hounds started out on a mountain-lion trail, they jumped a bear, and successful lion-hunting was impossible. Mr. Jones was transferred to another district until the bears hibernate for the winter, when he will return to capture the mountain lions, losses from which are averaging a deer or a cow each week. It has been necessary to take only one stock-killing bear in Arizona during the past 12 months. According to the reports of the hunters, most of the bears are living on acorns and insects.

Red Squill not Fatal to Ducks or Chickens.--C. D. Schwartz, of the Eastern Rodent-Control District stationed at Raleigh, N. C., recently investigated a complaint that 24 ducks had been killed with red squill used in rat control on a farm near Greensboro, N. C. The symptoms described by the owner indicated that the ducks had died of limberneck. Two reports that chickens had died following the exposure of red-squill rat baits were also investigated, and in both of these cases the symptoms, which were found to be identical, indicated that death was due to limberneck. The head of the poultry department of the North Carolina State College states that eating maggots obtained on decomposed flesh invariably causes limberneck. This stresses the advisability of picking up and disposing of all rat carcasses on premises where poultry is kept.

Bureau Exhibits Prove Attractive.--The Bureau exhibit this fall at the Wyoming State Fair, at Douglas, attracted many visitors. It consisted of a coyote in the act of killing a lamb, mounted in a lifelike manner in a natural setting made of native shrubs and trees, the background being a painting representing a typical summer sheep camp, with a herder and a band of sheep. A float entered in the parade during the recent celebration of the Oregon Trail Centennial received much attention. It represented a United States hunter's summer camp in the forest, with complete equipment. A live cub bear and wolf served as mascots. Furs of several predatory animals hung from the float to the ground, making a solid fur base for the camp.

Returns from Extended Tour.--James Silver, leader of the Eastern Rodent-Control District, recently returned to Washington from an extended field trip through New York, Ohio, Indiana, Kentucky, Tennessee, Mississippi, Florida, and North Carolina. In the northern group of States visited, he reports that field mice are relatively scarce this year, while rats, which have been somewhat below normal for two years, are on the increase. He states that the cotton rats in the South are very numerous this year, especially in the Everglades of Florida. Sugar-cane has been seriously damaged by these rodents in some localities.

Coyotes Are Becoming Bold.--Adolph S. Hamm, leader of predatory-animal and rodent control in Wyoming, has the scalp of a half-grown coyote pup that was captured in a poultry yard in the center of the city of Cheyenne, Wyo., where it was killing chickens. At early dawn on September 26 a pair of coyotes killed a registered ewe within 100 yards of the front steps of a residence 8 miles west of Cheyenne.

Investigates Pine-Mouse Control.--A. W. Moore, district investigator of the Control-Methods Research Laboratory, was temporarily assigned during the month to investigate the effects of certain poisons in controlling pine mice in the Eastern District. Mr. Moore spent three weeks in the vicinity of Vincennes, Ind., and made brief surveys of orchards in southern Ohio.

Newly Organized Michigan Force Active.--H. P. Williams, leader of predatory-animal control in the recently created Michigan District, reports that during September the force of 22 State hunters took 217 true predatory animals, and also assisted in fire-patrol work. Mr. Williams likewise says that several instances of depredations on livestock by predatory bears ceased after the capture of the offenders.

LAND ACQUISITION

Returns from West.--Mr. Dieffenbach has returned to Washington from a six weeks' trip, chiefly in Kansas, Oklahoma, Colorado, Utah, Nevada, California, and Washington, in connection with the proposed establishment of refuge areas within those States. He found the engineering work on the Cheyenne Bottoms, being conducted by Armand F. Allard, progressing rapidly and D. H. Janzen fully occupied in assembling supplemental data pertaining to the values of lands within the unit. Mr. Dieffenbach devoted some time to conferences with Colorado State officials relative to water problems on and adjacent to the San Luis Lake Refuge.

In Nevada he held several meetings with representatives of hunting clubs and with the directors of the Truckee-Carson Irrigation District for the purpose of working out satisfactory plans for the establishment of a migratory-bird refuge in that important region. Negotiations for the purchase of lands were conducted in California, and several areas situated in the Sacramento River Valley were inspected to ascertain the feasibility of establishing refuges there; but because of intensive agricultural developments and the complete use of water for irrigation purposes the prospects for doing so are not promising.

It becomes more apparent as the refuge program advances, says Mr. Dieffenbach, that many persons throughout the country who enjoy shooting are not so familiar as they might be with the purposes of the Migratory Bird Conservation Act, in spite of the widespread publicity already given to it. Local opposition to some particular refuge program is frequently met with. In some instances this is partly overcome by an exposition of the facts, but in others, educational work seems less effective. Much remains to be done along this

line in familiarizing the public with the real objectives of the refuge program, and one of the most effective means is by personal contacts.

Progress of Field Parties.--Carey H. Bennett and party are at present examining areas in Nevada; George D. Chittick's group is continuing the work in Massachusetts; Rudolph O. Gustafson's party is working in New York State; and Albert J. Rissman is about to proceed with his party to Arkansas from North Dakota.

Completes Work in Minnesota.--Senior Transitman Charles S. Cook has completed the survey work on a proposed migratory-bird refuge site at a lake in northern Minnesota, and is now on detail in the Washington office compiling engineering data and maps requisite to determining the feasibility of impounding and holding water in the lake basin.

Negotiate for Proposed Refuge Sites.--Robert Rutherford recently returned from a visit to Florida, where he was engaged on negotiations for the purchase of lands for consideration at the next meeting of the Migratory Bird Conservation Commission in December.

H. W. Hicks has been engaged on negotiations for the purchase of additional lands desired for the Upper Mississippi River Wild Life and Fish Refuge. He has also been making examinations of tracts that require special action in order to convey title to the United States.

Survey Refuge Areas.--Chalmer Jackson and Cecil E. Fletcher during the past month have been employed principally on surveys of lands within the Upper Mississippi Refuge not yet conveyed to the United States. A special study is being made of these lands, and action may be taken to convey title so that they may form integral parts of the refuge.

GAME AND BIRD CONSERVATION

Activities of Game Protectors.--Numerous reports of violations of the migratory-bird treaty act in Louisiana having been received. Game Protector J. V. Kelsey, of Daytona Beach, Fla., was assigned to assist Protector F. A. Johnson in Louisiana for a couple of weeks during the latter part of September and the first part of October. Game Protector B. R. Britton, of Socorro, N. Mex., worked with Deputy State Game Warden Noles in the Panhandle section of Texas during a part of October. During the month Game Protector K. F. Roahen, of Peoria, Ill., was assigned temporarily to the Niobrara Reservation in Nebraska to assist Geno A. Amundson, the newly appointed assistant reservation protector, in getting started on the work.

Headquarters of Bear River Refuge Changed.--The headquarters of the Bear River Migratory Bird Refuge were transferred, October 4, from the State Capitol Building, Salt Lake City, Utah, to the Bigelow Hotel, Ogden, Utah.

Marine Engineer Ill.--Luther B. Shawn, who is under temporary appointment as marine engineer and pilot of the Bureau's new speed boat, with headquarters at Washington, D. C., was ill and confined to a local hospital for several days during October.

Appointments.--Troy W. Pratt, who for the past seven years has been employed at the Elk Refuge, Wyo., has been appointed assistant reservation protector and United States deputy game warden at that refuge; Gano A. Amundson has been appointed assistant reservation protector and United States deputy game warden at Niobrara Reservation, Nebr.; and J. T. Salisbury, has been appointed deputy reservation protector and United States deputy game warden to protect wild life at Tule Lake and Clear Lake Bird Reservations, Calif., and at Upper Klamath Reservation, Oreg., during the present season.

Bison Range Notes.--In accordance with a cooperative arrangement with the State Game Commission of Montana, six elk from the National Bison Range were recently furnished for restocking an area near Polson. The animals were transported by truck, on September 16, and released on the west shore of Flathead Lake. A 6 1/4-inch well was drilled to a depth of 130 feet at the Bison Range this year, and excellent water was obtained. The flow is ample for domestic use, but insufficient for fire protection and irrigation.

Antelope Dies from Swallowing Nipples.--A three-year-old buck antelope was found dead at Sullys Hill Preserve, N. Dak., on the morning of September 18. Post-mortem examination revealed two rubber nipples lodged in the entrails, and it is believed that these caused the death. Protector Parker recalls that this antelope, which was obtained when very young from the Slim Buttes Antelope Preserve, S. Dak., in 1927, and raised on the bottle, swallowed the nipples when it was about 8 months old.

Protector Visits Stump Lake and Chase Lake Reservations.--Protector Wesley D. Parker, of Sullys Hill Game Preserve, who also has supervision over Stump Lake and Chase Lake Bird Reservations, N. Dak., visited Stump Lake on September 7 and put up new signs where needed. He states that this lake is becoming more alkaline each year, but that he found no dead birds, notwithstanding the fact that the water level has lowered considerably during the past summer. He visited Chase Lake Reservation on September 14, and posted new signs, and reports that the alkali is very strong in the lake and that the water level is much lower than in former years. A large number of ducks died there during September from alkali poisoning. Deputy Reservation Protector Hugh Marston, stationed at Chase Lake, stated that some of the ducks that had been found sick and unable to fly were placed on small areas of fresh water, and that they recovered and were able to fly within a few days. At the request of the State Game Commissioner, Protector Parker recently secured a large white-tailed buck deer, which was doing much damage at Sykeston, N. Dak., and transported it by truck to the Sullys Hill Preserve.

Elk Refuge Notes.--Harvesting the hay crop at the Elk Refuge Wyo., was completed on September 29; it is estimated that approximately 1,385 tons were produced on the refuge this year. On September 28, members of the State Game Commission conferred with Protector Almer P. Nelson relative to the quantity of hay needed for the elk during the coming winter, and arranged for the purchase of about 400 tons from a local ranchman.

During the week of September 21, Mr. Redington, Mr. Henderson, and three members of the Senate Committee on Wild Life Resources visited the Elk Refuge and adjacent lands in connection with formulating a program for the welfare of the elk that frequent Jackson Hole. Leonard W. Kephart, senior agronomist of the Bureau of Plant Industry, accompanied by Pro-

pector Nelson, inspected the hay meadows of the refuge on September 29 and 30, and observed the experimental work that is being carried on with a view to increasing the hay yield on some of the refuge lands and controlling the growth of squirreltail grass. The first snow of the season fell at the refuge on September 24.

Lake Malheur Notes.--Protector George M. Benson, of Lake Malheur Reservation, Oreg., reports trapping and banding two wood ducks on September 26, the first he has seen this season. The water level has been extremely low in Lake Malheur and the birds have concentrated in the areas where water is available. Owing to the extreme shortage of pasturage in the region, livestock have grazed within the boundaries of the reservation to a greater extent than heretofore. Stock raisers have drilled six shallow wells within the reservation, ranging in depth from 20 to 86 feet, for the purpose of watering their stock. These are of interest to the Survey from the standpoint of the future development of water supply at that point.

Passage Key Coming Back.--Harold P. Bennett, in charge of the Tampa Bay group of refuges, Florida, reports that Passage Key Bird Reservation, which had been nearly washed away during the past several years, has grown to about 6 or 8 acres. Thousands of frigate birds came to the refuge in Tampa Bay after the recent storm in Haiti.

Frederick M. Dille Retires

Frederick M. Dille, protector in charge of Niobrara Reservation, Nebr., retired under the Civil Service Retirement Act, on October 31, 1930. Mr. Dille has served in various capacities in the Survey since he was appointed on May 8, 1911-- first as agent, later as reservation inspector and United States deputy game warden, and, since 1923, as reservation protector. In earlier days, Mr. Dille had charge of all the reservations in the Mountain District, with headquarters at Denver, Colo. He has rendered valuable service to the Bureau not only in supervising the work on the reservations and in personally superintending the transfer of big game, but in building up and developing the Niobrara Reservation. He had charge of the construction of the big-game fences at Wind Cave, Sullys Hill, and Niobrara, and personally supervised the installation of the big-game animals at Wind Cave and Niobrara. He has devoted his more than 20 years of service to work in connection with wild-life reservations and the development of our big-game preserves. In leaving the service of the Department Mr. Dille carries with him the best wishes of the Bureau personnel for his future health and happiness.

A. H. Hardy, Former Employee, Drowns in Kusilof River.--It is with regret that the death of Allan H. Hardy, a former employee of the Bureau and of the Alaska Game Commission, is recorded. Mr. Hardy was drowned in the Kusilof River, Alaska, on September 5, 1930. The accident occurred about two miles above tidewater, when a boat in which he and a companion were ascending the river got out of their control by the stalling of an outboard motor and drifted downstream into a sweeper, where it was swamped. Mr. Hardy's companion was able to reach shore, but on being struck Mr. Hardy swam the other way and was drowned. The body was later recovered and interred at Anchorage, Alaska. Mr. Hardy is survived by his wife,

Mrs. Alice Hardy, to whom sympathy is extended in her bereavement. Mr. Hardy was in the service of the Biological Survey from September, 1923, when he was appointed as a fur warden, until August 11, 1925, when he was transferred with other Bureau employees to the roll of the Alaska Game Commission. He resigned from the Game Commission on May 1, 1926, to engage in fox farming, but was planning to re-enter the employ of the Alaska Game Commission in the near future as a warden. He held an enviable service record, both with the Biological Survey and with the Game Commission.

Fined for Serving Venison.--On September 11, Alaska Game Warden Frank Dufresne at Ketchikan received information that venison was being served at a commercial mess house of a logging camp on Heceta Island in violation of the Alaska game law. This island is 160 miles from Ketchikan. Within three hours after obtaining the warrant, Warden Dufresne, accompanied by a United States deputy marshal, had traveled by airplane to the island, arrested the violator, and had taken him before the United States commissioner at Ketchikan, where, on a plea of guilty, he was fined \$500.

Plans to Use Airplane in Control Work.--Sam O. White, Alaska game warden, is the possessor of a two-place monoplane, with a 90 horse-power motor. He passed his solo test early in August, and since then has made a number of successful flights. He expects to begin cross-country flying within a few months and hopes to be able to use his plane in official patrol work, and thus save himself many days of grueling work behind a dog team. Patrol boats as well as the airplane are now being used in enforcing the game laws in Alaska, and the game wardens who mush over the snow-covered trails behind sleds drawn by Malemutes are rapidly disappearing.

Forester Appointed for Upper Mississippi Refuge.--Howard A. Miller, of Indianola, Iowa, was appointed, effective September 16, to the position of junior forester on the Upper Mississippi River Wild Life and Fish Refuge. His duties will be concerned with forestry problems connected with the administration of the refuge.

Ranger Resigns.--Reservation Ranger Otto E. Mueller, in charge of the La Crosse district of the Upper Mississippi Refuge, resigned, effective September 30.

Metal Posters for the Upper Mississippi.--Approximately 3,500 metal refuge-boundary posters have been received by officials of the Upper Mississippi Refuge, and work of erecting them is being undertaken. The general design of the poster is that of the official shield of the United States. The letters and edging are embossed in black on a yellow field. In the middle of the shield are the letters "U. S." in conspicuous size, and beneath them, in smaller lettering, the words "Wild Life Refuge." The name of the Department and that of the Bureau appear at the top. The markers are approximately 20 inches in width and height, and are constructed of heavy metal. Erected on steel posts with directional arrows, these shields present an attractive appearance and are readily discernible at a considerable distance.

21 Violators Apprehended on Upper Mississippi during the Month.--On the opening day of the waterfowl hunting season, Superintendent R. C. Steele, assisted by Ranger Lawrence, while operating in the vicinity of McGregor and Harpers Ferry, Iowa, apprehended 11 persons for shooting and possessing wood ducks. Thirty-one wood ducks were seized. It is reported

that these arrests have had a salutary effect upon would-be violators in that section and also in the neighboring section popularly known as the Winneshiek Bottoms. Five residents of Wabasha County, Minn., were arrested on September 14 by Ranger Lundberg while in the act of erecting temporary blinds during the State close season, and upon arraignment in State court and pleas of guilty, each was fined \$10 and costs of \$4. Ranger Hall, in cooperation with a local State game warden, apprehended a resident of Winona County, Minn., on September 9, for taking game fish with a net. Upon a plea of guilty in State court, the defendant was fined \$50. These same officers on September 4 arrested a resident of Winona, Minn., for taking raccoons during the State close season. He pleaded guilty and was fined \$10 and costs. For the illegal transportation of game fish a resident of Pepin, Wis., was arraigned in State court at Red Wing, Minn., and upon pleading guilty was fined \$22 and costs of \$3. Ranger Lundberg and Deputy Ranger Berni apprehended two residents of Eau Claire, Wis., on September 16, while in the act of shooting wood ducks. The accused, upon arraignment in State court entered pleas of guilty and were fined \$50 each.

Conflicting Court Decisions in Trempealeau Controversy.--In a controversy between sportsmen of western Wisconsin and a licensed fur farm in operation in the Trempealeau Bottoms, Wisconsin, State circuit court judges recently rendered apparently diverse decisions relative to navigability of watercourses within the district. The area in question is situated in the Mississippi River bottoms and is subject to acquisition for the Upper Mississippi Refuge. Two actions were instituted in the matter. The one that was initiated by the fur farm sought a permanent injunction against the sportsmen from entering any portion of the area. The application was denied by the circuit judge before whom the case was tried on the ground that the waters within the fur farm are navigable and, therefore, under a long line of Wisconsin decisions, can not be closed to public hunting and fishing by owners of the adjoining land. The second action, instigated by the sportsmen, was brought by the Attorney General in the name of the State of Wisconsin and sought to have the fur farm's license revoked on the ground that its operation has constituted a public nuisance as defined under a State statute. This case, heard at Whitehall and La Crosse, was a lengthy one and much testimony was introduced by both parties. A circuit judge from a distant section of the State presided and heard the evidence. After several months' deliberation a decision was finally rendered holding that by a Wisconsin Supreme Court decision in 1912 sanctioning the organization of the Trempealeau Drainage District and maintaining that the waters therein were not navigable, they must still be so considered. In its opinion the court went on to say that a great injustice would result to the fur-farm company if the decision should be against it, because the company made an investment alleged to have been in the neighborhood of \$250,000 in reliance upon this decision of the Supreme Court about 20 years ago. Following the announcement of the court's decision, a mass meeting of more than 300 sportsmen from western Wisconsin was held in the village of Trempealeau, at which funds were pledged to carry the fight to the State Supreme Court. The fur-farm company, too, has indicated that the injunction suit that resulted adversely to it will likewise be appealed. Needless to say, the outcome of these cases in the Supreme Court will be awaited with considerable interest.

Game Law Violations.--Four cases involving hunting from airplanes have recently been terminated, two in Louisiana by a fine of \$10 each, and two in Kansas by a fine of \$25 each. The fourth conviction for hunting migratory game birds from an automobile was obtained on September 10, when an accused arraigned in Federal court for the eastern dis-

district of Missouri entered a plea of guilty and was fined \$10. Thirty days in jail was the sentence imposed by the Federal court at Baltimore, Md., on September 25, on a defendant charged with shipping wild ducks in improperly marked packages. The ducks were shipped to commission merchants in eggcrates, only the top layers of which, however, contained eggs, and were seized at destination by a Federal game protector.

First Conviction Under New Bag Limit.—The first prosecution for killing ducks in excess of the reduced daily bag limit, recently established by an amendment to the migratory-bird treaty-act regulations, was obtained in Federal court at Sacramento, Calif., on October 9. The violator was charged with killing 25 ducks, or 10 more than the legal daily limit, and upon pleading guilty was fined \$10. The dead birds, which were seized and which the defendant sought to have returned to him, were confiscated and by direction of the court donated to charity.

Treaty-Act Cases Terminated--Reports Received during September

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> | <u>Fine</u> |
|-------------------------------|--------------|----------------|--|------------------------|
| Carlock*,Fidler* | 2 | Illinois | Hunting ducks in close season | \$25 each |
| Chatten* | 1 | " | Offering for sale and selling ducks | \$50 and costs of \$35 |
| Creech* | 1 | Missouri | Killing a mourning dove from an automobile | \$10 |
| Harris,Jr.* | 1 | Illinois | Killing and possessing wood ducks | \$15 and costs |
| " " | 1 | " | Hunting wood ducks | \$15 and costs of \$35 |
| Holmes | 2 | Nebraska | Possessing yellowlegs | \$5 each |
| Holmes,Koster* | 2 | " | Killing and possessing yellowlegs | \$5 each |
| " " | 2 | " | Possessing yellowlegs | \$5 each |
| " " | 2 | " | Killing grebes | \$5 each |
| Holmes,Schuenke* | 3 | Iowa | Possessing wood ducks | \$5 each |
| Johnson | 2 | Louisiana | Hunting and killing geese from an airplane | \$10 each |
| Kelsey,Winnie** | 2 | Florida | Hunting ducks from a motor boat | \$5 each |
| Lane | 1 | North Carolina | Hunting waterfowl from a motor boat | \$5 |
| Linebaugh | 2 | Tennessee | Hunting ducks from a motor boat | \$25 each |
| Merovka,Grantham* | 6 | " | Killing doves in excess of daily bag limit | \$10 each |
| Merovka,Grantham*, Powell* | 2 | " | Killing and possessing doves in close season | \$10 each |

* U. S. deputy game warden.

** Deputy State game warden.

Treaty-Act Cases Terminated--Reports Received during September (Cont.)

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> | <u>Fine</u> |
|----------------------------|--------------|---------------|---|---|
| Perry, Concannon* | 1 | Kansas | Possessing ducks in storage in close season | \$5 |
| Riddick | 1 | Arkansas | Selling wild ducks | \$5 |
| Roahen | 1 | Illinois | Hunting ducks in close season | \$15 and costs - suspended during good behavior |
| Roahen, Reath** | 1 | Wisconsin | Possessing ducks and jacksnipe in storage in close season | \$50 |
| " | 1 | " | Possessing ducks in storage in close season | \$50 |
| Smith | 1 | Massachusetts | Possessing an eider duck | \$5 |
| Smith, Callahan** | 1 | New Hampshire | Possessing a yellowlegs | \$5 |
| Steele, Orin D. | 1 | Nebraska | Possessing yellowlegs | \$5 |
| Steele, Denmead | 1 | Maryland | Shipping ducks in improperly marked packages | 30 days in jail |
| Steele, Jr. *, Peterson**2 | | Missouri | Killing and possessing ducks in close season | \$25 each |
| Tonkin | 1 | Nevada | Possessing doves in close season | \$35 |
| " | 1 | " | Possessing a dove in close season | \$20 |
| Whitehead | 1 | Georgia | Killing doves in close season | \$5 |
| Whitehead, Saye* | 1 | " | Possessing ducks in storage in close season | \$10 |

Bird Reservation Trespass Cases Terminated during September

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> | <u>Fine</u> |
|----------------------|--------------|--------------|--|-------------|
| Leichhardt, Hubbard* | 4 | Washington | Hunting and possessing ducks on Dungeness Spit Bird Refuge | \$5 each |

* U. S. Deputy game warden.

** Deputy State Game warden.

Treaty-Act Cases Reported during September

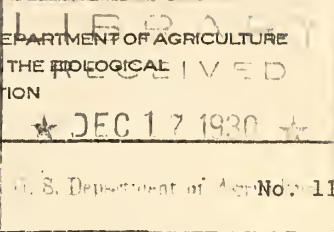
| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> |
|-------------------------------------|--------------|----------------|--|
| Birsch, Steere** | 5 | North Carolina | Killing and possessing doves in close season |
| " " | 1 | " " | Hunting doves in close season |
| Charlton | 1 | West Virginia | Killing a heron |
| Charlton, Kidder*, Knowles** | 2 | Michigan | Killing and possessing ducks in close season |
| Clarkson | 1 | Texas | Possessing willets |
| Leichhardt, Woodward*, Scibirt** | 2 | Washington | Killing ducks after sunset |
| Linebaugh, Sowell*, Searcy** | 2 | Tennessee | Killing doves on close season |
| Merovka, Grantham* | 6 | " | Killing and possessing doves in excess of daily bag limit |
| Merovka, Grantham*, Powell* | 4 | " | Killing and possessing doves during close season |
| Riddick, Gordon**, Jamieson** | 2 | Arkansas | Killing and possessing wood ducks |
| Roahen | 5 | Illinois | Hunting ducks in close season |
| Shaver, Beals*, Rogalla* | 2 | Minnesota | Selling ducks |
| Tonkin | 2 | California | Killing and possessing band-tailed pigeons |

*U. S. Deputy game warden.

**Deputy State game warden.

THE SURVEY

ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE
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U. S. Department of Agriculture No. 11

THE SINCERE SYMPATHY of all members of the Biological Survey goes out to their chief, in the death of his mother, Mrs. E. D. Redington, which occurred at Evanston, Ill., on Saturday, November 29. As soon as Mr. Redington learned, that afternoon, that she was critically ill with pneumonia, he canceled all engagements and hurried to be at her side, but the end came before he could reach her. Heartfelt sympathy also is felt for the aged father of Mr. Redington and other members of the family thus so suddenly bereft.

GENERAL NOTFS

Hunting on Bear River Marshes, a Correction.--By a regrettable oversight a statement was made on page 115 of THE SURVEY for October regarding hunting on the Bear River Marshes, Utah, that may have been misleading. To correct any erroneous impression it should be stated that the members of the party inspecting the Bear River Refuge, which included a member of the Senate Committee on Wild Life Resources, did no hunting at all on the refuge, but that on the opening day of the season, while guests of the Bear River Gun Club, members of the party obtained fine bags of ducks on the club's property.

Bureau Recognizes Faithful Services.--In recognition of their long and faithful services in cooperating with the Biological Survey by reporting data on the migration of North American birds from local observations, Mr. Redington has sent an engrossed testimonial to each of the following individuals, who have sent reports to the Biological Survey for more than 40 years; in some cases the records furnished antedate the establishment of the Biological Survey in 1885:

Seymour R. Ingersoll, recdrds covering the past 53 years (Ohio, 1878-1888; New York 1889-1921; and Florida, 1922-1930); H. Martyn Micklem, also 53 years (Virginia, since 1878); Franklin Lorenzo Burns, 47 years (Pennsylvania, since 1884); Clement Samuel Brimley, 46 years (North Carolina, since 1885); Dr. George Herman Jennings, 45 years (Connecticut, since 1886); Prof. Edwin Lincoln Moseley, also 45 years (Ohio, since 1886); Willis Woodford Worthington, 44 years (New York, since 1887); and F. F. Crevecoeur, 41 years (Kansas, since 1890).

The records contributed during this long period form part of the basic data of the Bureau used in mapping the distribution and migration of the various species of North American birds, in preparing the later editions of the check-list of birds of the American Ornithologists' Union, in compiling data useful in the formulation of protective laws, and in aiding bird students in the preparation of State and local lists of birds.

Returns from Leipzig Exposition.--Lisle Morrison, in charge of the Bureau's Office of Exhibits, who with Frank G. Ashbrook, head of the Division of Fur Resources, cooperated with representatives of the Office of Exhibits of the Department and of the Bureau of

Fisheries in this country's exhibit at the International Fur-Trade Exposition and Congress at Leipzig, Germany, during the past summer, returned to Washington on November 15. Agreeing with the other representatives, who returned earlier in the fall, Mr. Morrison reports that the exhibit of the United States was well received and that it creditably represented the work of the Federal Government, not so much along lines pertaining to commercial phases of the fur industry, as along lines of fur conservation and wise utilization. The American emphasis on conservation was unique among the exhibits of the countries represented and as such was highly commended editorially in foreign fur-trade papers.

Particularly effective, Mr. Morrison said, were the motion-picture films "How to Handle Foxes" and "The Fur Industry of the United States," prepared last spring especially for the exposition. The latter was described in detail in the April, 1930, issue of THE SURVEY. These films were shown before groups of scientists, including mammalogists, and of fur farmers, fur tradesmen, and others in position to appreciate fully their value in pictorially describing the many phases of the fur industry in the United States.

After the close of the exposition on September 30, Mr. Morrison spent a few weeks' vacation in England, Scotland, and Northern Ireland, where he had opportunity to visit relatives and renew acquaintance with former friends, particularly at his old home in Ulster and at Edinburgh. On being asked which he liked best of the various countries in which he had spent the past few months, Mr. Morrison replied: "The United States."

Convention Delegates Sample Domestic Rabbit Meat.---On November 18, Mr. Redington, Mr. Henderson, Dr. W. B. Bell, Frank G. Ashbrook, Stanley P. Young, W. E. Crouch, and D. A. Gilchrist attended a luncheon given by Secretary Hyde in the new administration building for those attending the 44th annual meeting of the Association of Land-Grant Colleges and Universities. Among the "special exhibits" of the menu was fried domestic rabbit, presented with the "compliments of the Biological Survey." This was furnished by the Division of Fur Resources in cooperation with the Bureau of Home Economics, and Mr. Ashbrook assisted the guests to become acquainted with this tempting viand.

Address Game Commissioners and Wardens.---Leo K. Couch, leader of rodent control in the Washington District, and United States Game Protector Chester A. Leichhardt appeared on the program of the 16th annual convention of the Washington State Association of County Game Commissioners and Wardens, held at Bellingham, Wash., November 14 and 15. Their subjects were, respectively, "Rodent Control--Its Effect on Wild Life" and "My Work as U. S. Game Protector and How I Can Help You."

Official Publications.---The following official publications have been issued during the month:

"Bureau of Biological Survey," reprint (pp. 50-55) from "The United States Department of Agriculture: Its Growth, Structure, and Functions," by M. S. Eisenhower and A. P. Chew. Received November 1.

"Winter Feeding of Upland Game Birds," by Wallace B. Grange. Bi-1099 (multigraphed), 4 p. Received November 26.

"Report of the Chief of the Bureau of Biological Survey," by Paul G. Redington, 56 p. Issued November 28.

Radio Talks for December.---The following Biological Survey radio talks for general broadcast have been scheduled for the month of December:

"Federal Aid in Game Preservation" (under auspices of American Game Conference), December 1, 1:30 p. m., E. S. T., by W. C. Henderson (in absence of Mr. Redington), National Broadcasting Chain.

"Rabbit Raising" (Primer for Town Farmers), December 3.

"New Knowledge of Wild Life" (Farm and Home Hour), December 9, 12:53 p. m., E. S. T., by W. C. Henderson (in absence of Mr. Redington), National Broadcasting Chain

"Reindeer and Musk-Oxen in Alaska" (Uncle Sam's Naturalist Series), December 19.

BIOLOGICAL INVESTIGATIONS

Investigate Food Habits of Fur Bearers.---On November 14, Doctor Bell attended a conference called by the dean of the School of Forestry and Conservation of the University of Michigan at Ann Arbor, to discuss problems relating to fur bearers. At a similar conference last spring an agreement was reached on the desirability of undertaking special studies of the food habits of fur bearers, particularly those that are flesh eaters. During the past summer, Dr. Ned Dearborn, formerly on the staff of the Biological Survey and now a member of the faculty of the University of Michigan School of Forestry and Conservation, with two assistants, carried on the field investigations. They have since been engaged in making preliminary laboratory studies of the results of their field work. At the conference Doctor Dearborn outlined the methods followed in the investigation, which included a study of the habits of the animals and the collection of representative material to be used as a basis for detailed laboratory studies of their feeding habits and of their relationship to game and domestic birds and animals. He likewise reported on the results thus far obtained in the investigation of the food habits and economic status of these fur bearers and of the losses in market value incurred by trappers through taking animals before the pelts are prime. Doctor Dearborn's talk was followed by a general discussion of the situation and of the course to be pursued in further investigations, educational work, and legislation. The conferees indorsed the methods used in the investigation, recommended the continuance of work along the same lines, and urged the fullest possible cooperation with the Biological Survey in the undertaking.

Banded Tern as Cupid's Assistant.---A roseate tern, banded at Chatham, Mass., on July 5, 1929, was recently captured on the Island of Marguerita, Venezuela. In commenting upon the incident an article appearing in a Caracas newspaper suggests that this bird was released by some eccentric Yankee millionaire who took this novel means of establishing communication with some South American senorita, or that perhaps the reverse was true -- that it had been released by the daughter of a millionaire -- in which case the writer stated that he would be glad to offer himself as a candidate for her hand.

Visits Bird-Banding Stations.---During October F. C. Lincoln inspected many of the bird-banding stations in eastern Pennsylvania, northern New Jersey, New York, and in the New England States. He went north as far as Peterboro, N. H., and east to Cape Cod, Mass., where he visited the O. L. Austin Ornithological Research Laboratory. At the last-mentioned locality conditions are especially favorable for the study of certain ornithological problems by the bird-banding method. Mr. Austin stated that he was capturing and banding 90 per cent of the small birds that came to the area; and from watching the traps and nets for a day or two Mr. Lincoln believes this estimate to be approximately correct. Great interest in the bird-banding investigations was manifested at all stations visited, and it is evident that in this work the Bureau is receiving cooperation of the highest type.

Sympathy is extended to Dr. and Mrs. H. C. Oberholser in the death of Mrs. Oberholser's mother, Mrs. A. G. Smith, which occurred in Washington, D. C., on November 25.

FOOD HABITS RESEARCH

Ends Season's Duck Disease Studies in West.--E. R. Kalmbach returned to Washington early in November from an investigation of the duck sickness in western States begun during the preceding fiscal year. Definite results, especially in the experimental transmission of the disease, were obtained this year, and it is felt that these point to an exact determination of the causes. A report on the results of the investigation will soon be published. En route to Washington Mr. Kalmbach visited a number of localities in Oregon, Washington, Idaho, Utah, Wyoming, Colorado, and Kansas to study the possibilities of establishing a western sub-laboratory of the Division. He also conferred with the director of the agricultural experiment station at Woodward, Okla., in regard to the control of English sparrows.

Progress of Game-Bird Studies.--Wallace B. Grange returned to Washington on November 17 from an extended field trip. In company with H. L. Stoddard he spent some time in Arizona in the interests of the Gambel's Quail Fellowship Investigation now being carried on under the direction of David M. Gorsuch. After working in the region near Tucson, all three visited J. Stokley Ligon, formerly connected with the Biological Survey, at his game farm near Carlsbad, N. Mex. Mr. Ligon is raising several species of southwestern game birds, and had on hand about 500 scaled quail and many Gambel's quail. After leaving Carlsbad Mr. Stoddard returned to Washington, and Messrs. Grange and Gorsuch proceeded to Albuquerque and Santa Fe in connection with the investigation of scaled quail being undertaken by New Mexico. Following this, Mr. Grange worked with the game-bird research cooperators in the mid-West, going first to northern Minnesota, where a particularly interesting feature was the demonstration of the Indian method of capturing grouse. Three spruce grouse and two ruffed grouse were taken to St. Paul for experimental observation. A preliminary survey was made of pheasant and Hungarian-partridge territory in Wisconsin, Minnesota, Iowa, and South Dakota, particular attention being given to the effects of various farm practices upon these birds. Two days were spent in visiting a cooperative game-management demonstration area near Lansing, Mich. Mr. Grange also attended the conference on fur-bearing animals called by the School of Forestry and Conservation of the University of Michigan, at Ann Arbor, on November 14.

FUR RESOURCES

Visits New York City.--Mr. Ashbrook spent November 4 and 5 in New York City conferring with members of the fur trade. He also made arrangements to dispose of the skins from muskrats used in an experiment to determine the prime-fur periods in certain sections of the Upper Mississippi River Wild Life and Fish Refuge.

Talks on Fur Farming.--Mr. Ashbrook attended a supper given by the Beltsville (Md.) Grange, October 28, and gave an informal talk on "Fur Farming," illustrating it with the motion picture "The Fur Industry of the United States." At the regular meeting of the Biological Society of Washington, at the Cosmos Club, November 15, Mr. Ashbrook spoke on "Fur Farming in Europe" and showed the same picture.

Appraises Muskrat Marshlands.--During the latter part of October and the early part of November Dr. J. E. Shillinger assisted in appraising land for the Mississippi River flood-control spillway in southern Louisiana. It is anticipated that the diversion of the

surplus water from the Mississippi to the Atchafalaya River basin may affect the water level on approximately 357,000 acres of marshland at the mouth of that river. Since the changing water level would have a bearing on the numbers of fur animals, which constitute the principal product of these marshlands, it was deemed important by the army engineers in charge of this project to have their present values established.

Attends Meeting of Mink Breeders.---Dr. Karl B. Hanson, director of the Fur-Animal Experiment Station, at Saratoga Springs, N. Y., attended a meeting of the New England Mink Breeders' Association, at Greenland, N. H., on November 10 and 11, and gave a talk on the production of minks in captivity.

Director of Rabbit Station Coming to Washington.---John W. Meyer, director of the Rabbit Experiment Station, at Fontana, Calif., left there on November 26 for Washington, D. C. He will attend the annual convention of the American Rabbit and Cavy Breeders' Association to be held at Des Moines, Iowa, December 1 to 5. Exhibit material was prepared at the rabbit station for use at this convention. Mr. Meyer is expected to arrive in Washington on December 10.

PREDATORY-ANIMAL AND RODENT CONTROL

Returns from Extended Field Trip.---On October 31 Mr. Young returned to Washington after a three-months' absence in the field, during which time he visited Wyoming, Colorado, and all States west of the Rocky Mountains, in all of which he noted good progress in both rodent and predatory-animal control in areas where economic conditions justify operations. While in Idaho he had opportunity to inspect the ground where the much-talked-of 700-mile poison line was laid during the fiscal year 1923 by L. S. Twitchell, assistant to L. J. Goldman, in charge of predatory-animal control. Instead of his having broadcast poison baits from his automobile along highways for 700 miles, as has been alleged, Mr. Twitchell used the car to cover areas where poison stations had previously been established with the aid of pack and saddle horses. These stations in some instances were several miles apart, and within the Great American Desert. None of the stations was in a forested area or along a stream bank. The line of operations, which was crescent-shaped, began in the vicinity of the Craters of the Moon and ended in the Sand Hill Desert section east of Dubois, Idaho, and surrounded the territory used as lambing grounds. Within this area are the headquarters of about a dozen livestock ranches, and it was from each of these as a base that Mr. Twitchell placed his stations. After all were laid, he used his automobile for inspection tours. The work was started in July, 1922, and traps were used within the area until early in the fall. Poison stations were then operated until the close of winter, when traps were again resorted to.

While traveling down the Oregon coast Mr. Young was interested in noting that coyotes have invaded the region in the vicinity of his boyhood home, where they did not exist previous to 1904. Coyotes are now found along the greater portion of the Oregon coast, where at times they kill the sheep grazing on the areas overlooking the Pacific Ocean.

In Nevada, motion pictures were taken of the antelope and other forms of wild life on the proposed new antelope refuge there. It was learned that depredations occurred whenever there was any abatement in close trapping for coyotes within the boundaries of the new refuge.

Rat Control in Europe.---Ernest M. Mills, of the Eastern Rodent-Control District, conferred with several authorities on rat control during his extended European trip last summer.

The Secretary of the International Conference on Rats, at Paris, stated that at the present time the French Government is doing very little with rat control, but that red squill is being used extensively in France and that he is in favor of further work with rat viruses as a possible method of control. The head of the College of Pestology in London also is of the opinion that additional work on rat viruses is highly desirable and believes that the Rodier system of rodent control has possibilities and should be given further tests on a large scale. This method is based on the theory that if only the female rats were killed, the males would so far outnumber the females as to prevent continued breeding. The technical adviser on rat repression of the British Ministry of Agriculture reported that there are now only about 20 per cent of the number of rats there were 10 years ago when the "Rats and Mice Destruction Act of 1919" became a law. Great Britain has inaugurated a National Rat Week, which is largely educational. Red squill is most widely used, although phosphorus and barium carbonate are also employed extensively, and cyanide gas is used around dumps and hedge-rows. Mr. Mills also had opportunity to observe operations for rat control in numerous places, and has submitted a report of methods used. All the authorities interviewed were strongly in favor of continued international conferences on rat control, and it is expected that one will be called within the next two years.

Investigations of Control Methods Undertaken.—Cooperative investigation of predatory-animal-control operations was started in October, five scientists of the Division of Biological Investigations being assigned to work with five representatives of the American Society of Mammalogists. Vernon Bailey was detailed to work in Montana, Oregon, and Washington; E. A. Goldman, in Arkansas, California, Nevada, and Oklahoma; S. B. Locke, in Idaho and Utah; O. J. Murie, in Colorado, South Dakota, and Wyoming; and Dr. W. P. Taylor, in Arizona, New Mexico, and Texas.

Temporarily Detailed to Washington Office.—D. A. Gilchrist, leader of predatory-animal and rodent control in the Arizona District, is on a month's temporary detail in the Washington office prior to assuming his new duties on January 1 as regional supervisor of Region No. 4 (Arizona, New Mexico, Oklahoma, Arkansas, and Texas).

Rodent Bait-Mixing Station Transferred to Control-Methods Project.—Effective November 1, the supervision of the rodent bait-mixing station, at McCammon, Idaho, was transferred from the Idaho District to the Control-Methods Research Project. Paul T. Quick, formerly assistant in rodent control in Idaho, who has played an important part in the establishment and operation of this station, was placed in charge. This bait-mixing station has grown from a small plant designed to accommodate local cooperators only to an undertaking that last year prepared 275,000 pounds of rodent bait and an additional 163,000 pounds of steam-crushed oats. Not only were Idaho farmers served by the plant, but 16 other States ordered bait or oats. To care for such a volume of business Leader T. B. Murray and his force have worked tirelessly and faithfully. The separation of the plant from the Idaho District will allow Mr. Murray to give more attention to the details of his rodent-control operations.

Did Rats Contribute to R-101 Disaster?—In the November 3 issue of the news magazine Time appeared the following interesting note: "Rats leave a sinking ship, but in the smoldering wreckage of the British airship R-101 a host of rats was found swarming soon after the crash at Beauvais, France. Rats like the banana oil smell and taste of the "dope" (cellulose acetate or cellulose nitrate) used for coating aircraft fabrics. Question before the crash court of inquiry in London this week: Were the rats in the wreckage French rats or were they British stowaways in the R-101; had they gnawed a freshly doped balloonet of hydrogen until the gas leaked?"

Accepts Scholarship at University of New Mexico.--Leader John C. Gatlin, of the New Mexico District, announces that Paul Russell who has been connected with the rodent-control work in that State, has been given a scholarship at the University of New Mexico. He will cooperate with the State Game and Fish Commission in making extensive studies of the scaled quail. The Bureau wishes Mr. Russell success in his new field of endeavor.

Stock Growers Cooperate in Predatory-Animal Control.--Mr. Gatlin reports that the Tank Mountain Wolf Club, with a membership of 13 ranchers, met at Animas on August 22 and agreed to cooperate with the Biological Survey by employing a hunter to work in the territory included in its range of 162 sections, or more than 103,000 acres, with the avowed purpose of decreasing the losses to sheep and goats by marauding coyotes and wolves. The club is to assess each member at the rate of 12 cents a head on sheep and goats annually to carry out its part of the agreement.

Troublesome Beavers Transplanted.--Leader Leo K. Couch, of the Washington District, reports that because of the complaints of farmers living in the vicinity of Skookum Creek, Pend Oreille County, Wash., four beavers were recently trapped and transplanted to Marshall Lake, in the same county, in cooperation with the State Game Commission. Beavers planted five years ago in the Packwood Lake Section of Lewis County were found last August to have increased rapidly in numbers.

Rats Like Silk Stockings.--Several unusual incidents occurred in connection with the rat-control work carried on by H. S. Speer, a cooperative employee of the Biological Survey and the City of Portland, Oreg. While inspecting a large mercantile building, Mr. Speer found it necessary to recommend that certain shelving in the hosiery department be removed. When this was done, it was discovered that a rat--found dead--had dragged 12 pairs of silk stockings through a small hole in the shelving.

Tularemia from Coyotes.--The following interesting case of tularemia in coyotes was recorded in the Journal of the American Medical Association for November 1: "In June, 1925, Garberson of Miles City, Mont., encountered a case of serologically confirmed tularemia in a man who had been bitten by a coyote puppy (Canis lestes). ... Careful investigation did not reveal any other probable source of infection. Parker decided to investigate the susceptibility of the coyote to tularemia. Three young coyotes were fed with the tissues of guinea pigs and Belgian rabbits just dead of tularemia. The coyotes died on the thirteenth, twenty-second, and fifty-third days, respectively, after the infectious material was first fed. Emulsions of tissue of the dead coyotes were injected into guinea pigs. The guinea pigs died. ... More recently, Kunkel has reported a case of typical ulceroglandular tularemia in a man who had killed and skinned an adult coyote. ... While the wild rabbit constitutes the important reservoir of infection for other animals and man, recent reports of new animal hosts and transmitters (woodchuck, opossum, muskrat, European water rat, sheep, and quail) and new insect vectors (wood tick of California, Dermacentor occidentalis Newmann) indicate the ever-widening spread of the infection to other forms of animal and insect life. This situation is almost certain to result in the perpetuation of the disease among lower animal forms and thus increase the possibilities for the development of the infection in human beings."

Assistant Leaders Appointed.--The following men have been appointed to the position of assistant leader of predatory-animal control: Everett T. Personnett and Alanson B. Bynum in the Texas District, effective November 1; and C. E. Gillham in the Arizona District, and E. G. Albert, Orin Robinson, and Oliver Robinson in the Wyoming District, effective December 1.

New District Leaders To Be Appointed in January.--Effective January 1, 1931, when the new regional supervisors assume their duties, the following personnel changes will be made: Stanley G. Jewett, who has had charge of the predatory-animal control operations in Oregon for many years, will assume leadership also of the rodent control work, formerly in charge of Regional Supervisor I. N. Gabrielson; D. D. Green, assistant in predatory-animal and rodent control in the Colorado District, will become leader of that district, succeeding Regional Supervisor L. L. Laythe; Ben E. Foster, assistant in predatory-animal and rodent control in the Arizona District, will become leader of the work in that district, succeeding Regional Supervisor D. A. Gilchrist. In the Eastern Region, of which District Leader James Silver will be the regional supervisor, the following assistant leaders will become district leaders: G. C. Oderkirk, in the Indiana, Illinois, and Wisconsin District; E. M. Mills, in the New England District; C. D. Schwartz, in the North Carolina and South Carolina District; and Roy Moore, in the Mississippi and Louisiana District.

Sends Brown Bear to National Zoo.--George E. Holman, leader of predatory-animal control for Utah, recently secured a small female brown bear (Euarctos americanus), which he has presented to the National Zoological Park in Washington, D. C. This will make a valuable addition to the group of bears already at the park.

LAND ACQUISITION

Outlines Wild-Life Refuge Program.--At a recent meeting of the Committee on the Conservation and Administration of the Public Domain, created by the President to recommend suitable disposition of the public lands, Mr. Redington had opportunity to tell the members what has been done by the Biological Survey toward establishing wild-life refuges, particularly those attractive to migratory birds, and to advise the committee of the investigative work conducted since the passage of the migratory bird conservation act relative to selecting suitable areas not heretofore established as refuge sites. The committee is primarily interested in ascertaining the opinion of the Biological Survey in regard to the disposition of the unallotted and unpatented public domain. It was indicated that by the end of the current fiscal year the Survey would be able to make a complete statement with regard to those portions of the public domain deemed suitable for refuge purposes.

New Bird Refuge in California.--By Executive order of November 25, 1930, the Government lands in the southern portion of the Salton Sea, Imperial County, Calif., were set aside as a refuge and breeding ground for migratory birds. The lands involved have been withdrawn for reclamation purposes in connection with the Yuma Reclamation Project, Arizona-California. They are primarily under the jurisdiction of the Department of the Interior and are subject to its use for irrigation and other incidental purposes. This refuge attracts great numbers of waterfowl during their migrations and will constitute an important link in the network of refuges to be established in the west coast region under the migratory bird conservation act. It will be known as the Salton Sea Wild Life Refuge.

Negotiate for Proposed Refuge Lands.--During the latter part of October and the first of November Mr. Dieffenbach visited St. Louis and other points in Missouri for the purpose of negotiating for refuge lands. Robert M. Rutherford was in Norfolk, Va., on November 12 in connection with lands desired within a proposed unit in North Carolina.

Detailed to the Washington Office.--Doren E. Woodward, formerly a member of Carey H. Bennett's field party, has been temporarily detailed to Washington to assist in the office work on the numerous projects being examined, reviewed, and mapped.

Appointments.--During November, David D. Pugh, of Pennsylvania, and Kenneth C. Kern, of Oklahoma, were appointed transitmen and assigned to the Cape Romain refuge unit in South Carolina, where they are engaged in surveying lands approved for purchase by the Migratory Bird Conservation Commission.

Assembling Land-Grant Data.--Charles S. Cook is temporarily detailed to Columbia, S. C., to assemble land-grant data for the lands in the Cape Romain unit now being surveyed. The grants for most of the lands on the eastern seaboard comprising the thirteen original States were issued in pre-Revolutionary days, and these basic grants are found only in the archives of the respective States and do not form part of the Federal Government's records. Mr. Cook will later assume charge of the field work on the Cape Romain area. Arthur A. Riemer is also in South Carolina organizing extensive operations there, both on the land-grant investigations at Columbia and in the field on the Cape Romain unit.

Progress of Field Parties.--The field party under the direction of Carey H. Bennett is now working in northern California, and that under Rudolph A. Gustafson is examining a proposed unit in Ohio. The crews under Albert J. Rissman and George D. Chittick have combined for work on an extensive area in Arkansas. Mr. Rissman, on account of a leg injury, will be unable to continue field work for several weeks, and Mr. Chittick has been placed in charge of both parties.

GAME AND BIRD CONSERVATION

Game Conditions in Vermont.--Mr. Sheldon, who was in Vermont on vacation during October, reports that woodcock in that section were about as plentiful as in 1929, but that they were much dispersed by the drought. The birds were fat and in fine condition, however. Grouse were at least 50 per cent more numerous than last year, but not up to normal. Mr. Sheldon says that there were great numbers of wood ducks in that section and that they remained later in the fall than he had ever before known them to do. Ducks seemed about as abundant on the local marshes as they were last season.

Investigate Status of Wild Fowl.--Mr. Sheldon and Talbott Denmead spent the greater part of November investigating the status of wild fowl, the use of decoys and sinkboxes, and baiting, Mr. Sheldon chiefly in Ohio and in the Mississippi River Valley and Mr. Denmead along the Atlantic coast. They also consulted with State game authorities in the areas visited concerning game conditions.

Game Protector Transferred to Montana.--Game Protector K. F. Roahen, of Peoria, Ill., will be transferred to Billings, Mont., about December 1, and Stephen Creech, of St. Louis, Mo., who was appointed United States game protector effective October 27, will fill the position in Illinois thus made vacant. W. R. Dillon, assistant U. S. game conservation officer, conferred with Game Protectors K. F. Roahen and Stephen Creech and several deputies in Chicago on November 4 and 5 and discussed plans for the fall and winter work in Illinois.

and in portions of adjacent States. From Chicago Mr. Dillon proceeded to Detroit, where he consulted with Game Protector M. A. Charlton and other Federal officials concerning activities under the Lacey Act and other matters.

Visit to Washington Office.---Ray C. Steele, superintendent of the Upper Mississippi River Wild Life and Fish Refuge, Winona, Minn., was in Washington, D. C., late in October and early in November conferring on matters pertaining to the administration of the refuge. Protector B. E. Smith, of Portland, Me., was in the Washington office a couple of days in October. He has been assigned to work for about a month on the Susquehanna Flats in Maryland with the motor boat Killdeer. Game Protector O. D. Steele, of Cambridge, Md., conferred with officials in the Washington office on October 29 regarding game conditions in his district.

Many Dead Ducks Found on Potomac.---During the latter part of October, just prior to the beginning of the open season on wild fowl, many dead wild ducks were found on the Potomac River by officials of the Survey as well as by others. These birds on being examined by pathologists of the Bureau of Animal Industry showed a severe inflammation of the intestinal tract caused by parasites. It was thought very improbable that birds able to fly were clinically affected by the parasites, or that persons eating birds killed on the wing would suffer ill results. The specialists advised, however, that any birds killed on the water be discarded if an abnormal reddening of the intestinal tract was evident.

Parrot Embargo Lifted.---The Public Health Service regulations under the Executive order of January 24, 1930, prohibiting the importation of parrots on account of the outbreak of parrot fever last winter, were amended on October 29 to admit parrots in limited numbers under certain conditions. Shipments limited to 100 birds each may now be entered at ports provided with quarantine detention facilities, and all shipments are to be detained in quarantine for 15 days. Since the embargo has been raised about 30 Australian parrots have been imported.

Hungarian Partridges and Pheasants Imported.---Permits were issued during the month for the importation of 6,314 Hungarian partridges and for two unusually large shipments of pheasants from England, containing 1,000 and 1,200 birds, respectively.

Notes from Various Bird Refuges.---Superintendent George E. Mushbach, of the Bear River Migratory Bird Refuge, Utah, reports that during a trip over the refuge on October 30 he saw many ducks, swans, and shorebirds, as well as thousands of snow geese and a loon, a rare species in that locality.

Deputy Reservation Protector Fred S. Winkler, of Belle Fourche Bird Reservation, S. Dak., estimates that there were 2,500 ducks, mostly mallards (about half as many as last year), and about 200 geese on the refuge at the end of October, and states that there is plenty of food for the birds.

Deputy Reservation Protector William E. Hubbard reports that conditions at Dungeness Spit Bird Reservation, Wash., are usually good, and that the ducks are plentiful and in good condition.

Protector George M. Benson, of Lake Malheur Bird Reservation, Oreg., states that he was surprised, on visiting his banding station on October 18, to find the trap half full of swans. He banded 21 of these birds and took pictures of them. Since that time he has banded additional swans and reports them in poor condition, some being very weak. One found dead had apparently starved. Three swans repeat at the trap every day and are getting much stronger as well as tamer. Many others are eating the trap bait, and a few

are being fed elsewhere. Mr. Benson says that the mallards at the refuge are in fine condition, but that about half of the baldpates, pintails, and canvasbacks are rather poor. He estimated that on October 20 there were about 4,000 snow geese on the refuge, feeding over the dry lake bed; while thousands of ducks were on the shallow water area within the refuge. On account of the shooting outside the reservation, the birds seldom leave it in the daytime. The drought has greatly cut down the hunting areas outside, and the hunters, as well as the ducks and geese, have concentrated in small areas. As soon as the hunters begin their bombardment, the birds go to the refuge, and Mr. Benson says that "they are sticking close to the reservation in spite of the hard picking."

Big Lake Bird Reservation, Ark., is dry. Some deer and wild turkeys on this refuge are being given special surveillance in order to prevent depredations by law violators.

Deer Killed on Bison Range.--A deer was killed recently on the Bison Range, in Montana, by a minor resident of the vicinity, who was permitted to plead guilty to the possession of a deer in close season and was fined \$50 and costs. He also received a sentence of 6 months in jail, which was suspended during good behavior. Two other deer have recently been found dead on the Bison Range from bullet wounds.

Deer Purchased for Sullys Hill; Buffalo Shipped East.--Protector Wesley D. Parker, of Sullys Hill Game Preserve, N. Dak., on November 6 obtained two female white-tailed deer fawns at Wilton, N. Dak., that were purchased by the Bureau for the herd at Sullys Hill. A 1 1/2-year-old male buffalo from Sullys Hill Game Preserve, and a yearling female buffalo from Wind Cave Game Preserve, S. Dak., were shipped during October to the zoological park at Harrisburg, Pa.

Elk Refuge Notes.--The first elk to come onto the Elk Refuge, in Wyoming, this fall were about 20 cows and calves, which arrived at the Izaak Walton League Addition on the night of October 26. Since then the number has been steadily increasing, and on the morning of November 1 there were approximately 400 in the meadows of the League addition. It is only in the high mountains surrounding the valley that snow lies early in November, and it is unusual for the elk to begin to gather on the refuge when there is no snow in the valley or on the surrounding foothills. A large number of the elk had migrated from the Teton State Game Preserve at the beginning of November. Protector Almer P. Nelson reports that the pet bull elk, now more than two years old, that has been at the refuge since it was a calf, began to show signs of carrying scab mites in August, when it left the refuge and was gone for about three weeks. When it returned, it had lost some flesh and was suffering severely. It was covered with mites, much of its hair was gone, and its sides had become black with scab. Mr. Nelson and O. J. Murie put the elk in the corral, tied it to the fence, and sprayed and soaked its entire body with nicotine diluted in warm water. After three treatments at 12-day intervals, it appeared to be practically rid of the mites.

Notes from Fort Yukon, Alaska.--Game Warden George W. Taylor, employed by the Alaska Game Commission and stationed at Fort Yukon, within the Arctic Circle, reports that on October 12 he saw 18 mallard ducks in an open slough close by. Usually these birds have left this vicinity for the south by September 15. He states that most of the lakes and sloughs are frozen. Slush ice started running in the Yukon River on October 13, and on the 16th the flow was so heavy that the freeze-up was expected within three or four days. On an eight-mile trip near Fort Yukon on October 15, Mr. Taylor observed 6 caribou, 5 foxes, 1 wolverene, 1 wolf, 1 coyote, and 5 weasels. He says that rabbits and mice are much more plentiful than last year.

Appointments.--Joseph Talla, superintendent of power at the Minidoka Irrigation Project, Idaho, under the Bureau of Reclamation, was recently appointed a deputy reservation protector to cooperate with the Biological Survey in protecting the birds at the Minidoka Bird Reservation within the reclamation project; Eli Taylor was made deputy reservation Protector at Brevard Reservation, Fla., during this season, his appointment having been made possible through the cooperation of the Florida Audubon Society; Robert Towle, was appointed agent and United States deputy game warden at Deer Flat Bird Reservation, Idaho, during this season, the State game department cooperating with this Bureau by furnishing funds for part payment of his salary; Harvey R. McElwee was appointed deputy reservation protector and United States deputy game warden to protect the North Platte Bird Reservation, Nebr.; R. G. Hillhouse was appointed deputy reservation protector and United States deputy game warden to assist Protector Steven B. Crossley at Big Lake Bird Reservation, Ark., during the present hunting season; and Spencer L. Richards was made part-time clerk-stenographer at the Brigham, Utah, office of the Bear River Migratory Bird Refuge.

Aleutian Island Regulations Approved.--New regulations for the administration of the Aleutian Islands Reservation, Alaska, were approved by Secretary Hyde on October 31, 1930. Under these, administrative jurisdiction over this reservation is vested in the administrative officer of the Bureau, at Juneau, Alaska. Heretofore the administration of the islands has been conducted from the Survey in Washington, and permits for fox farming farming and stock grazing were issued from this office. This change should greatly facilitate the work connected with the administration of the reservation.

Ranger Hall Reappointed.--Homer F. Hall, formerly a junior reservation ranger, has been appointed ranger on the Upper Mississippi Wild Life and Fish Refuge to fill the position in the La Crosse District made vacant by the recent resignation of Otto E. Mueller.

Cruiser "Widgeon" Leaves Upper Mississippi.--Engineman George H. Winslow, of the Upper Mississippi Refuge, accompanied by Junior Forester Howard J. Sargeant, of the Land Acquisition Division, left La Crosse, Wis., on October 21, with the cruiser Widgeon for St. Charles, Ark., where the boat is to be used in refuge-survey work on the Arkansas River.

Fire Hazard Increases on Upper Mississippi.--Continued low water in the Mississippi River and lack of rain during October and November have created an acute fire hazard on the Upper Mississippi Refuge. Constant vigilance is maintained by the rangers in all the districts, and prompt action has resulted in checking several fires that otherwise would have been serious.

Ranger Finds Dead Swan.--While recently patrolling an area in the Upper Mississippi Refuge, opposite Wabasha, Minn., Deputy Ranger Berni found a dead whistling swan. The bird measured 84 1/2 inches from tip to tip. It is not known how it was killed, but the rangers are investigating the matter thoroughly. During the first part of November rangers reported seeing several swans in flight over the refuge just below Lake Pepin.

Fined for Game Law Violations.--The following cases involving violations of the game and fish laws on the Upper Mississippi Refuge were terminated during the past month:

For exceeding the State daily bag limit of ducks a resident of Lake City, Minn., was fined \$10 and costs of \$4; for shooting ducks from a motor boat a resident of the same city was fined \$10 and costs of \$3; a resident of Wabasha, Minn., was fined \$10 and costs of

\$3 for shooting a swan, and for shooting ducks prior to half an hour before sunrise another was fined \$10 and costs of \$3; three residents of Wabasha County were each fined \$10 and costs of \$3 for a violation of the State fish laws, and for hunting without a license another was fined \$10 and costs of \$3; the evidence in these cases was obtained by Ranger Lundberg.

For a violation of the commercial fishing laws a resident of La Crosse, Wis., apprehended by Ranger Hall, was fined \$50 and costs of \$4.50; in addition, his license was revoked. For taking raccoons from the refuge during the State close season a resident of Crawford County, Wis., was fined \$50 and costs of \$7.77, the evidence being obtained by Ranger Lawrence. Two residents of Crawford County, Wis., apprehended by Ranger Lawrence, were each fined \$50 and costs of \$2.35 for hunting ducks after sunset. For killing wood ducks in the refuge three residents of Crawford County apprehended by Superintendent Steele and Ranger Lawrence were each fined \$50 and costs of \$3.02. The court imposed an added penalty of \$5 a bird, making an additional fine of \$25 to be paid by the three defendants.

Night Shooters Apprehended.--On October 21, Ranger Hall, while patrolling an area in the Upper Mississippi Refuge in Houston County, Minn., apprehended 7 persons for hunting ducks after sunset. These cases have not yet been disposed of.

Best Wishes are extended to Mr. and Mrs. R. Dean Cornwell, who were married on November 7. Mrs. Cornwell, formerly Miss Doris I. Kohnke, is a stenographer in the Winona office of the Upper Mississippi Refuge.

Treaty-Act Cases Terminated--Reports Received during October

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> | <u>Fine</u> |
|---------------------------|--------------|----------------|---|---|
| Birsch, Warrington** | 1 | North Carolina | Possessing ducks in storage in close season | \$25 |
| Kelsey | 2 | Florida | Hunting ducks and coots from a motor boat | \$5 each |
| Kelsey, Winne** | 3 | " | Hunting ducks from a motor boat | \$5 each |
| London* | 1 | California | Killing ducks in excess of daily bag limit | \$10 |
| Merovka | 1 | Mississippi | Killing and possessing yellowlegs | \$25 and costs of \$25.50 |
| Merovka, Grantham* | 2 | Tennessee | Killing and possessing doves in close season | \$50 each |
| Perry, Concannon* | 2 | Kansas | Hunting and pursuing waterfowl from an airplane | \$25 each |
| Ransom, Fenstermaker* | 1 | Washington | Killing and possessing a blue heron | \$10 |
| Steele, Capps*, Tyler* | 1 | Virginia | Killing and possessing brant in close season | 6 months' jail sentence; suspended for 3 years on good behavior |

* U. S. deputy game warden.

** Deputy State game warden.

Treaty-Act Cases Reported during October

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> |
|-----------------------|--------------|---------------|--|
| Barmeier | 1 | Missouri | Killing a mourning dove in close season |
| Branchaud | 1 | Dist. of Col. | Possessing ducks in storage in close season |
| " | 2 | " " " | Killing ducks in close season |
| Charlton | 1 | Ohio | Possessing a flicker and a robin |
| Clarkson | 1 | Texas | Killing a mourning dove from an automobile |
| Gieseler* | 1 | Illinois | Possessing a wood duck |
| " | 1 | " | Killing a yellowlegs |
| " | 1 | " | Killing and possessing killdeer |
| Hall* | 3 | Minnesota | Killing wood ducks |
| Hoffman | 1 | Alabama | Hunting mourning doves in close season |
| " | 1 | " | Hunting wood ducks |
| Holmes | 4 | Nebraska | Hunting and killing ducks after sunset |
| " | 3 | " | Killing a duck in close season |
| " | 1 | " | Killing and possessing yellowlegs |
| Jans* | 2 | Illinois | Killing and possessing meadowlarks |
| " | 1 | " | Possessing meadowlarks |
| " | 2 | " | Killing and possessing a robin and a thrush |
| " | 2 | " | Hunting ducks and jacksnipe in close season |
| " | 1 | " | Hunting and possessing yellowlegs |
| " | 1 | " | Killing a rail in close season |
| " | 2 | " | Killing jacksnipe and coot in close season |
| " | 1 | " | Hunting and possessing jacksnipe |
| Jans*, Peterson* | 2 | " | Hunting coot from a motor boat |
| Jans*, Westline* | 1 | " | Possessing a robin |
| Lawrence* | 1 | " | Possessing yellowlegs |
| London* | 1 | California | Killing ducks in excess of daily bag limit |
| Nill* | 1 | Kansas | Killing an avocet |
| Perry, Lawhorn* | 1 | " | Killing and possessing robins and a catbird |
| Ransom, Fenstermaker* | 1 | Washington | Killing a blue heron |
| Riddick | 2 | Arkansas | Killing ducks in close season |
| Roahen | 2 | Illinois | Killing jacksnipe in close season |
| " | 3 | " | Killing and possessing ducks in close season |
| " | 2 | " | Killing and possessing yellowlegs |
| Roahen, Jans* | 1 | " | Killing a sandpiper |
| Shaver | 2 | Minnesota | Hunting ducks in close season |
| Whitehead | 3 | Georgia | Possessing wood ducks |
| Whitehead, Carter* | 2 | " | Killing and possessing wood ducks |

* U. S. deputy game warden.

THE SURVEY

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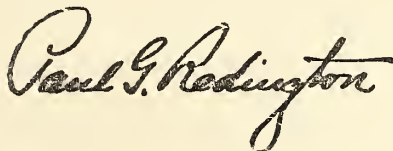
TO THE MEMBERS OF THE SURVEY AND COOPERATORS WHO RECEIVE OUR HOUSE ORGAN:

The year that has gone by has not only witnessed steady progress in the research activities of the Biological Survey and a closer coordination of our work, but it has also chronicled the beginnings of the program for the acquisition of refuge lands, to relieve in some measure the harassed condition of our migratory wild fowl.

A number of new names appear on the roster of members and cooperators of the Bureau, and our house organ is reaching many of these each month. To the industrious and loyal workers of the Survey, and to our supporters, our thanks go out in very large measure for their cooperation during the year.

From many standpoints the year 1931 looks bright indeed, with its possibilities of further progress in our field of public service. I am confident that I can count on all our people to do their part in keeping the work of the Survey on a high plane. I wish, through the medium of our house organ, to express to all members and friends of the Survey, both in Washington and in the field, the hope that the new year, from both official and personal viewpoints, may be one of happiness and satisfaction.

Office of the Chief
December 19, 1930



GENERAL NOTES

Addresses Wool Growers.--On December 9 and 10, Mr. Redington attended the annual meeting of the National Wool Growers' Association, at Colorado Springs, Colo., and addressed the gathering on "The Federal Program of Wild-Life Control." He returned to Washington on December 17.

Bureau Represented at American Game Conference.--The following members of the Biological Survey attended sessions of the seventeenth American Game Conference held in New York City, December 2 and 3, under the auspices of the American Game Protective Association: W. C. Henderson, Dr. W. B. Bell, Dr. A. K. Fisher, H. P. Sheldon, Talbott Denmead, W. R. Dillon, F. C. Lincoln, George E. Mushbach, W. B. Grange, and W. E. Crouch. In the absence of Mr. Redington, who was called to Evanston, Ill., on account of the death of his mother, his address on the subject of "Federal Wild-Life Activities in 1930" was read by Mr. Henderson, who also presented the radio talk scheduled to be given by the Chief on "Federal Aid in Game Preservation." Other members of the Department presenting papers at the conference included Doctor Bell, who spoke on "The Large Game Situation in North America," and Dr. Eloise B. Cram, of the zoological division of the Bureau of Animal Industry, on "Parasitism in Game Birds." At the annual dinner of the conference on December 2, R. Y. Stuart, chief of the Forest Service, spoke on "Forests and Game."

One of the chief accomplishments was the adoption by the conference of an American game policy, which contemplates a program of research and experiment in all lines that may be proposed for the welfare of game, including upland game birds, waterfowl, and game mammals. On the opening day of the conference the following telegram from President Hoover, addressed to Senator F. C. Walcott, of Connecticut, chairman of the Senate Committee on Wild Life Resources, was read in his absence by Senator Harry B. Hawes, of Missouri:

"The protection and propagation of the useful wild life of the country is of much greater importance than is generally realized and deserves the most careful attention. The biological facts should be first ascertained and measures planned in accordance with them and with the equally important facts of human nature. Such measures can provide a program that will not only be of great economic value but will also preserve the great human values of sportmanship and the outdoor life. I am glad to learn that the seventeenth annual meeting of the American Game Conference is about to canvass this problem anew, and I will be obliged if you will express to those present my cordial greetings and best wishes for a fruitful discussion."

Visitors.--Among the visitors at the Washington office recently have been John M. Phillips, conservationist, of Pittsburgh, Pa.; L. T. Oldroyd, commissioner of agriculture of Wyoming; C. Watt Brandon, former editor of the Sheridan Journal, Sheridan, Wyo.; Dr. H. L. Kent, president of the New Mexico College of Agriculture; A. A. Johns, president of the Arizona Wool Growers Association; H. B. Embach, secretary of the Arizona Wool Growers Association; W. C. Jacobsen, chief of the Plant Quarantine and Pest Control, California State Department of Agriculture; A. E. Bowman, extension director of the University of Wyoming; A. P. Spencer, vice-director of the extension service of the University of Florida; I. O. Schaub, extension director of the North Carolina State College of Agriculture; Prof. V. E. Shelford, of the University of Illinois; Burnie Maurek, game and fish commissioner of North Dakota; and David H. Madsen, formerly superintendent of the Bear River Refuge, and now assistant in the National Park Service, in purchases of lands.

BIOLOGICAL INVESTIGATIONS

Musk-Oxen Reach Alaska.---The 34 musk-oxen captured in northeastern Greenland during the past summer, which are to form the nucleus of a herd to stock the Alaska barrens, reached Fairbanks, Alaska, on November 4. After their long confinement in the crates, some of the animals seemed suspicious of liberty and had to be urged to leave their little houses. Once outside, however, they quickly made themselves at home in the inclosure where liberated, and within a short time had discovered the feeding racks provided for them. The younger animals were the first to accept the situation. Each animal was weighed before being released. The largest, a cow about $2\frac{1}{2}$ years old, weighed 284 pounds. The smallest calf weighed 74 pounds and the largest 131 pounds, with an average for the 17 calves of 104 pounds. Most of the 17 older animals were yearlings. For the present they are confined in a 40-acre inclosure on the campus of the Agricultural College Experiment Station at College, where they will be kept for observation and study.

Interesting Return Records of Banded Birds.---Since the opening of the hunting season for wild fowl, numbers of return records have been received daily. On one day there were no fewer than 62, and the daily average has been about 30. The following are of special interest:

A herring gull, banded on September 5, 1923, at Wood Island, Grand Manan, New Brunswick, was captured in a poultry yard at Freeport, Nova Scotia, on September 22, 1930, the bird thus being at least 7 years old; a mallard duck, banded on November 2, 1928, at Milwaukee, Wis., was shot about October 21, 1930, at Nail Pond, Prince Edward Island; a coot, banded on October 22, 1930, at Big Suamico, Green Bay, Wis., was killed at Essex, Conn., on November 5, 1930; a long-billed curlew, banded June 11, 1929, on the Bear River marshes, Utah, was shot on September 18, 1930, six miles south of Ensenada, Lower California; a mallard banded on November 23, 1930, at Big Suamico, Green Bay, Wis., was killed five days later near Georgetown, S. C., this bird having established a record for individual speed of migration.

Studies Wild-Life Conditions in North Carolina.---During November T. D. Burleigh continued his investigations of the wild life of the region about Bent Creek, N. C., and in the neighboring mountains. The methods of capturing some of the fur-bearing animals received attention and arrangements were made for obtaining the stomachs of some of the animals taken by local trappers. Preliminary investigations were made of the cause of death of several deer. Several days were spent on the summit of Mount Mitchell and at Indian Gap to collect data for comparison with observations made at the same places during June.

True Christmas Spirit.---To brighten the lives of needy children, rather than to exchange with one another the customary greeting cards, was the plan chosen this year by the members of this Division for celebrating Christmas. Dimes, quarters, and even dollars were forthcoming and included contributions from a few former members of the Division and others. Christmas bags, each for some deserving child whose faith in a real Santa Claus had inspired a letter to him, were filled to the brim with toys and clothing. If we may judge from recollections from the dimming past, the results brightened the lives of those fortunate little ones whose stars decreed that their names should be drawn by this gift committee.

FOOD HABITS RESEARCH

Game-Bird Research Fellows Visit Washington.--Following their attendance at the American Game Conference in New York City on December 1 and 2, the three mid-West game-bird research Fellows visited the Biological Survey offices in Washington: Ralph T. King of St. Paul, Minn., who is studying the ruffed grouse; Ralph Yeatter of Ann Arbor, Mich., who is investigating the Hungarian partridge; and Paul Errington, of Madison, Wis., who is studying the bobwhite on the northern fringe of its range. The fellowships were suggested by the Cooperative Quail Investigation directed by Herbert L. Stoddard in Georgia and Florida, and represent an attempt to encourage similar research by universities and other State agencies. Their object is to enlarge our knowledge of game, to devise methods for its increase, and to train men for game work. The fellowships are supported financially by the Sporting Arms and Ammunition Manufacturers' Institute, of New York City. They are directed and carried on exactly as any university project and have the laboratory and field cooperation of the Survey. Each fellow is continuing graduate work in addition to conducting his investigation.

The men were particularly pleased in having the opportunity to meet many of the staff members of the Survey, and were interested in observing the method of examining stomachs, the filing systems, and the reference collections of this Division. Mr. King and Mr. Yeatter left for Ann Arbor, Mich., on December 5, but Mr. Errington remained a few days longer to sort out some pellet material that he has gathered.

FUR RESOURCES

Attend Fox and Livestock Shows in Chicago.--Mr. Ashbrook and Dr. Karl B. Hanson attended the Fox and Fur Show held in connection with the Chicago Coliseum Poultry Exposition, from December 3 to 7. A large number of silver foxes and minks, some blue and white foxes, and a few karakul sheep were on exhibition. Judging foxes and minks continued two days. The quality of the animals exhibited is reported good and the attendance at the show splendid. Both men were on the educational program in connection with the exposition. On December 4, Mr. Ashbrook spoke on Fur Farming, illustrating his talk with the motion picture "The Fur Industry of the United States." Doctor Hanson, on December 5, discussed the work being conducted at the U. S. Fur-Animal Experiment Station, at Saratoga Springs, N. Y., and illustrated his talk with the motion picture "How to Handle Foxes."

John W. Meyer, director of the Rabbit Experiment Station, Fontana, Calif., arrived in Chicago on December 5, en route to Washington, after attending the annual convention of the American Rabbit and Cavy Breeders' Association in Des Moines, Iowa, where he displayed a rabbit exhibit demonstrating the work conducted at the Rabbit Experiment Station. While in Chicago, Mr. Ashbrook, Doctor Hanson, and Mr. Meyer also visited the International Livestock Show to view the exhibits of this Department and of the 4-H Clubs. On December 6, accompanied by the secretary of the American Rabbit and Cavy Breeders' Association, they attended the Fox and Fur Show and visited a raw-fur receiving house to obtain information on various grades and qualities of rabbit skins handled.

Boy Scouts Learn about Fur Animals.--On December 5, Dr. J. E. Shillinger gave a talk to the Boy Scouts at Chevy Chase, Md., and showed them specimens of furs and lantern slides of fur animals.

Appointments.--Roy Thomas Fisk, of Lynwood, Calif., was appointed agent on December 1 to succeed Clarence Prouty, who resigned on November 15. He will have headquarters at the

University of California at Los Angeles, and will assist in the rabbit-disease investigations being conducted cooperatively by this Division and that institution.

Frank R. Smith, of Fredericktown, Pa., was appointed agent on December 1 to have charge of the new project relating to muskrat investigations, which will be carried on cooperatively by this Division, the University of Maryland, and the Conservation Department of Maryland. Doctor Shillinger accompanied Mr. Smith to the new field station near Cambridge, Md., on December 6, and assisted him in starting the work.

PREDATORY-ANIMAL AND RODENT CONTROL

Field Office Issues New Quarterly Bulletin.--Control Methods Research Quarterly Bulletin, Vol. 1, No. 1, containing an abundance of interesting information, made its appearance recently. Director F. E. Garlough and his staff are to be congratulated on this contribution.

Coyote Depredations Checked.--Hunter Fred Barnes, of the Wyoming District, reports that a sheepman of the Lance Creek region recently lost 70 sheep from coyote depredations. Immediately after Hunter Barnes had caught 12 old killers on that range, the depredations ceased.

Busy Badgers.--Although badgers when not too severely injured are released when caught by our hunters, since they are valuable as fur bearers and as rodent destroyers, these animals are sometimes found to be responsible for serious damage. As an example, it was necessary recently to assign Hunter Fred L. Cole, of Rawlins, Wyo., to the air-mail field at Wamsutter to trap badgers that are digging holes and causing a serious hazard to airplanes landing on the field. Hunter Grover Logan, of Green River, Wyo., also recently had to kill three badgers that dug under his brother's chicken coop and killed 17 fowls in one night. Another instance is reported by Hunter George Logan, of Arizona, who states that during the past summer badgers caused the loss of several reservoirs in his district that had cost stockmen \$25,000 to construct. These stockmen are insisting that the badgers be eradicated from their ranges.

Worth Saving.--R. Scott Zimmerman, leader of rodent control in Utah, recently received a letter from the president of a produce company of Green River, Utah, expressing his appreciation for the part played by the Bureau in transforming a prairie-dog town into a field of cantaloupes and tomatoes valued at \$19,000.

Porcupine Control on Extensive Area.--Leo K. Couch, leader of rodent control in Washington, reports that the control of porcupines has recently been undertaken over approximately five townships in the Umatilla National Forest. Porcupines there are damaging large stands of yellow pine, in some of the open draws more than 70 per cent of the trees being affected. Lodgepole pine, Douglas fir, and mountain larch are also being barked. Orchardists in the region reported fruit trees damaged, while farms bordering the forest suffered losses in sacked grain left in the field after threshing.

Brill's Disease and Rats.--L. C. Whitehead, leader of rodent control in Texas, reports that the State Health Officer has requested the Bureau to assist in a rat control campaign at Bellville, Austin County, Tex. Ten persons in the district have been ill with "Brill's disease," a mild form of typhoid fever, supposedly carried by rats. A rat campaign has been launched by Mr. Whitehead and assistants, in cooperation with the county and city health officials and the Bellville Chamber of Commerce.

Predators Busy in Arizona.--Arizona predatory-animal hunters found and reported the following losses from predatory animals in the Arizona District during October: 140 sheep, 46 chickens, 4 turkeys, 15 calves, 1 colt, and 7 deer. Four cooperating stockmen reported 100 calves and 25 pigs killed by coyotes, and 700 sheep killed by mountain lions and coyotes during the past year.

Will Investigate Sheep Killing in Tennessee. -- A petition has been received by the Biological Survey from 18 Tennessee farmers, who have recently lost 187 lambs and ewes, stating that they have killed five young wolves and requesting the assistance of the Survey's force in further predatory-animal control. A. E. Gray, leader of the Oklahoma-Arkansas District, has assigned Assistant Leader C. F. Briggs to investigate the situation.

Rats Destroy Wall Paper.--C. Tucker, an employee detailed to rat-control work at Tacoma, Wash., reported on November 15: "A house newly papered, but vacant, was taken possession of by rats and much of the new wall paper was torn off for the paste."

Survey Personnel Win Awards for Home Beautification.--Expert as the field force of the Biological Survey engaged in rodent control work may be in their particular line, they also demonstrated during the past year that they excel in something besides outwitting ground squirrels, pocket gophers, rats, and other rodents. Home-beautification contests and flower shows held in the State of Washington attracted the attention of some of these men and their families.

John Finley, assistant biologist, and his wife captured the second prize in a home-beautification contest held in Puyallup, Wash., winning \$20. The Finleys built their home three years ago.

John Connors, field agent with headquarters in Spokane, and his wife, after winning first honors in the suburb known as Opportunity, took the sweepstakes prize of \$25 in a home-improvement contest held in the Spokane Valley during October under the sponsorship of the Spokane Chamber of Commerce.

C. Tucker, supervisor of the Tacoma rat project, felt very proud when his small daughter won a prize offered by a garden club in Tacoma. She later won another prize for a rock-plant exhibit in South Tacoma.

Leo K. Couch, leader of rodent control, although in partnership with his wife in everything grown in their garden, left the exhibition of the varieties to Mrs. Couch at shows sponsored by the Olympia Flower Society. Mrs. Couch took six first and several second prizes for individual and collective exhibits of flowers. The Couch family have an extensive collection of rock plants on their property in South Olympia. The collection consists of about 350 varieties, many of which were started from seeds and plants collected in various parts of Washington State.

Congratulations.--The Albuquerque, N. Mex., office of the Biological Survey reports the birth of a son to Mr. and Mrs. Clarence M. Aldous on November 2, and of a daughter to Mr. and Mrs. Shaler E. Aldous on November 20. Clarence Aldous is assistant leader of rodent control in the New Mexico District, and Shaler Aldous is district investigator of the Control Methods Research Laboratory, both with headquarters at Albuquerque.

Sympathy is extended to Miss Clona C. Whitaker, stenographer in this Division, in the death of her brother, which occurred at Indianapolis, Ind., on December 5.

LAND ACQUISITION

Four Units Approved by Commission.--At the meeting of the Migratory Bird Conservation Commission on December 18, the purchase of lands for four new refuges was authorized as follows: Salton Sea Wild Life Refuge, in the Imperial Valley, Calif., 8,982 acres, to add to 15,733 acres set aside for this refuge by Executive order of November 25, 1930; St. Marks Migratory Bird Refuge, on the Gulf coast south of Tallahassee, Fla., 13,981 acres; Swanquarter Migratory Bird Refuge, adjoining Pamlico Sound, N. C., 11,778 acres; and Crescent Lake Migratory Bird Refuge in the sandhills of western Nebraska, 39,038 acres. Mr. Dieffenbach, who is secretary of the commission, on December 23 gave a radio talk on the subject "Migratory Bird Conservation Commission Approves Purchases of Lands for Refuges" in the Farm and Home Hour program of the Department over the National Broadcasting chain.

Survey Work at Cheyenne Bottoms Nearly Completed.--The surveying work on the Cheyenne Bottoms, Kans., migratory-bird refuge site has progressed so far that only a short time will be required to complete it, and Armand F. Allard, who is conducting this work, will soon be available for assignments on other refuge units where engineering studies are to be made.

Rissman Improving.--Albert J. Rissman, who suffered an injury to his leg while conducting field examinations, has so improved that he is able to perform office duties and is

Examines Proposed Refuge Site in Missouri.--Daniel H. Janzen, who has charge of the work on the Cheyenne Bottoms Refuge, has been temporarily detailed to examine an area in Missouri proposed as a migratory-bird refuge. When this work is completed, Mr. Janzen will proceed to Washington, D. C., to confer regarding plans for the acquisition work in the Cheyenne Bottoms.

Returns to Washington.--A. A. Riemer returned to Washington on November 29 after nearly a month's stay in South Carolina, where he was engaged in organizing surveying work on the Cape Romain Refuge. Charles S. Cook, Kenneth C. Kern, and David D. Pugh remained in South Carolina to complete this work.

Status of Field Parties.--Rudolph O. Gustafson's party has completed work in Ohio and is working in Maryland. The crew under the direction of Carey H. Bennett is continuing work in California, and that under George D. Chittick is still engaged in the examination of an extensive area in Arkansas.

GAME AND BIRD CONSERVATION

Refuge Superintendent in Washington.--George E. Mushbach, superintendent of the Bear River Migratory Bird Refuge, Ogden, Utah, was in the Washington office the latter part of November and early in December for a series of conferences regarding refuge matters.

Advisory Board Meets.--The annual meeting of the Advisory Board, Migratory Bird Treaty Act, was held at the Cosmos Club in Washington, D. C., on December 4, with 13 members present.

At New Headquarters.--U. S. Game Protector K. F. Roahen is now situated at his new headquarters at Billings, Mont.

Protector's Job No "Snap."--U. S. Game Protector O. D. Steele, stationed at Cambridge, Md., has sent in an interesting account of how he and U. S. Deputy Game Wardens John W. Creighton and John T. Capps spent Thanksgiving Day. They were marooned on Hollands Island in Chesapeake Bay about 20 miles from the mainland and passed what Mr. Steele reports to have been anything but a pleasant holiday. Tuesday night, November 25, a high wind came up, and the temperature suddenly dropped. It appeared that the wind and waves would wreck the motor boat Curlew, which was anchored 100 yards off the shore of the island. By Thursday the fuel on the boat was exhausted and the food supplies were practically gone. The low water, however, had bared the oyster bars, and the men went ashore and picked up oysters, their Thanksgiving dinner consisting of fried oysters, canned beans, fried sweet-potato bread, and canned pears. A little later Deputy Creighton was taken ill and grew steadily worse. They could not reach shore or medical aid, but did everything they could for him with the small supply of medicine on hand. "It was a gloomy situation," says Mr. Steele, "no fuel, a very small amount of food, and the storm continuing as if it would never end. Friday was no better, though Creighton appeared a little stronger and took some food. Saturday morning the wind abated, and as soon as the tide came in sufficiently we turned the Curlew around. Assistance had come down from the mainland but was held at the edge of the ice half a mile away. We soon had the old Curlew, long noted for her ice-breaking power, under way, and we broke through to the relief boat, and, leaving Capps, Creighton and I came up on the bay to Hoopers Island, where we found my automobile, which I had left on the shore, frozen tight and all six cylinders burst beyond repair. And so goes the Thanksgiving of a United States game protector."

U. S. Game Protector L. J. Merovka and U. S. Deputy Game Warden W. E. Dickerson had a thrilling experience on November 30 with the motor boat C-5. While patrolling the Mississippi River from Memphis, Tenn., north to Island 39, they were caught in a windstorm, the huge waves covering the boat several times before they could get to shore. Mr. Merovka reports that it "looked pretty bad for them for a while and that they were prepared for the worst."

Elk Drowned during Migration.--Protector Almer P. Nelson, of the Elk Refuge, Wyo., reports that from November 13 to 17 about 9 inches of snow fell at the refuge, and much of this was piled in drifts by heavy winds. Since this storm large numbers of elk migrated toward the refuge from the Teton State Game Preserve, on December 1 about 2,000 being there and many more on the Flat Creek and Sheep Creek foothills. On the night of November 17, a large number of elk migrating from the Teton State Game Preserve attempted to cross Snake River on the ice, about half-way between Moran, Wyo., and the mouth of Pacific Creek. Sixty animals broke through, five were rescued alive, but the rest drowned. Fifty of the dead elk were dragged from the river and five disappeared under the ice. Mr. Nelson states that about eight years ago 32 elk broke through the ice on Snake River near the same place and were drowned.

Antelope Losses.--The loss of four antelope has been reported from the band at Niobrara Reservation, Nebr. These disappeared during a storm late in November. One of the young animals was later found dead, and one, found alive, died after being returned to the rest of the band. Two antelope have died recently at Sullys Hill Preserve, N. Dak., from abscesses, resulting, it is believed, from sharp grasses penetrating the tissues in the mouth.

Fire Hazard at Big Lake.--On November 19, a fire started on the southern part of Big Lake Bird Reservation, Ark., but was extinguished by Protector S. B. Crossley and his assistant, R. G. Hillhouse, before any damage was done to the duck feeding grounds. Woods in the vicinity of this reservation were reported on fire on November 29, but according to latest advises the fire had not reached the refuge.

Bird-Refuge Notes.--Protector Wm. E. Hubbard, of Dungeness Spit Reservation, Wash., states that more ducks are there this season than for the past five years. Brant arrived at the refuge earlier than usual this year and are still plentiful.

Assistant Protector G. A. Amundson, of the Niobrara Reservation, Nebr., reports that mallard ducks are on the river at this reservation by the tens of thousands.

Protector George M. Benson, of Lake Malheur Bird Reservation, Oreg., says that on November 2 he observed about 7,000 geese on the lake, which was nearly dry. The flock included white-fronted, Hutchins', Canada, and snow geese. On November 3 he saw about 10,000 birds in flight over the lake. The Blitzen River is now spreading over the dry lake bed.

Importations.--Several large shipments of birds were imported during the month, permits being issued for more than 69,000 birds, including 8,560 Hungarian partridges. Among the rarer birds were 12 parrakeets (*Pyrrhura emma*) from Venezuela and 2 Australian parrakeets (*Polytelis barrabandi*) from London. Permits were also issued for the importation of 167 European fitches. Considerable interest in raising these fur bearers in captivity has developed during the past year. The importation of tinamous from Argentina has been prohibited, under the provisions of the new tariff act, by Treasury Decision 44407, approved November 26, 1930. The largest shipment of canaries ever entered at New York arrived on November 7. It contained 10,442 canaries and included also several hundred miscellaneous birds.

Addresses Waltonians and Rotarians.--Superintendent R. C. Steele, of the Upper Mississippi River Wild Life and Fish Refuge, on November 24 addressed a meeting of the Minneapolis chapter of the Izaak Walton League of America. On December 10, he spoke on game conservation before the Rotary Club of Winona, Minn.

Personnel Changes.--The appointments of Deputy Reservation Rangers Seeger Stevenson, Nels Nelson, and Lars M. Pederson on the Upper Mississippi Refuge were recently terminated. Julius G. H. Frerichs has been appointed deputy reservation ranger and United States deputy game warden at this refuge.

Beaver Thriving on Upper Mississippi.--Ranger John L. Lundberg, of the Upper Mississippi Refuge, reports that there are now more than 40 beavers in the colonies near Trevino, Buffalo County, Wis. These have increased from several planted there about three years ago. One of the animals' feed beds that they have put up for this winter is fully 50 feet long. Ranger Lundberg also reports that during the past season beavers have established two colonies not more than 300 feet from the refuge cabin near Trevino. Outbreaks of fires have been carefully guarded against in this area since its inclusion in the refuge nearly four years ago, and in consequence aspen, the favorite food of beavers, has sprung up in considerable quantities.

Penalties Imposed for Illegal Trapping on Upper Mississippi Refuge.--Ranger H. C. Lawrence apprehended two residents of Lansing, Iowa, on December 8 for illegal trapping in the section of the Upper Mississippi Refuge known as the Winneshiek Bottoms, in Crawford County, Wis. Upon pleas of guilty in State court and in default of payment of fines imposed

both defendants were sentenced to serve 30 days in jail. In addition, 13 muskrats and 47 traps were confiscated. For possessing muskrats illegally three residents of La Crosse, Wis., were recently apprehended by Ranger Lundberg and upon pleas of guilty before a justice of the peace at Caledonia, Minn., were fined \$50, \$25, and \$10, respectively, besides costs aggregating \$48.10. The man fined \$10 paid his fine, but the other two in default of payment were sentenced to hard labor, one for 75 days and the other for 50 days. In addition, a hunting boat, 29 traps, and 4 muskrats found in their possession were confiscated. A resident of Winona, Minn., was recently fined \$10 for shooting at waterfowl from open water. Ranger Hall assisted in obtaining the evidence in this case. Another resident of Winona was apprehended by Deputy Ranger G. H. Winslow for hunting in a refuge area in Trempealeau County, Wis., without a license, and upon arraignment before a justice at Fountain City, Wis., he pleaded guilty and was fined \$50 and costs of \$4. As this man was not a habitual violator and was out of work, his fine was suspended.

Fined \$400 For False Testimony.--For false testimony given in connection with a prosecution at La Crosse, Wis., on October 4, 1929, for the illegal possession of muskrats, a licensed fur farmer was found guilty in a 4-day trial at La Crosse, Wis., November 10-13, 1930. The defendant was sentenced to pay a fine of \$400 and costs of \$233.95. Ranger H. F. Hall, who assisted in the apprehension of this violator a year ago, testified on behalf of the prosecution in this case.

Treaty-Act Cases Terminated--Reports Received during November

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> | <u>Fine</u> |
|-----------------------------------|--------------|--------------|--|-----------------------------------|
| Barmeier, Miller* | 2 | Illinois | Hunting ducks in close season | \$50 each |
| Charlton | 1 | Ohio | Possessing a flicker and a robin | \$100 |
| Charlton, Leggett*, McDonough* | 1 | Michigan | Selling ducks | \$50 |
| Fidler* | 1 | Illinois | Killing and possessing wood ducks | \$15 and costs of \$35 |
| Harris* | 1 | Arkansas | Possessing ducks in storage in close season | \$5 |
| Jans* | 1 | Illinois | Possessing a wood duck | \$15 and costs of \$35 |
| Riddick | 1 | Arkansas | Killing and possessing a wood duck | \$5 |
| Riddick, Gordon**, Jamieson** | 2 | " | Killing and possessing wood ducks | \$5 each |
| Roahen | 2 | Iowa | Hunting ducks in close season | \$10 and costs of \$14.20 each |
| " | 1 | Illinois | Shooting at coots from a motor boat | \$15 |

Treaty-Act Cases Reported during November

| <u>Protector</u> | <u>Cases</u> | <u>State</u> | <u>Violation</u> |
|-------------------|--------------|--------------|----------------------------|
| Holmes, LeFever** | 1 | Nebraska | Hunting ducks after sunset |
| " " | 1 | " | Killing a golden plover |

* U. S. Deputy game warden.

** Deputy State game warden.

